THE Soybean Digest

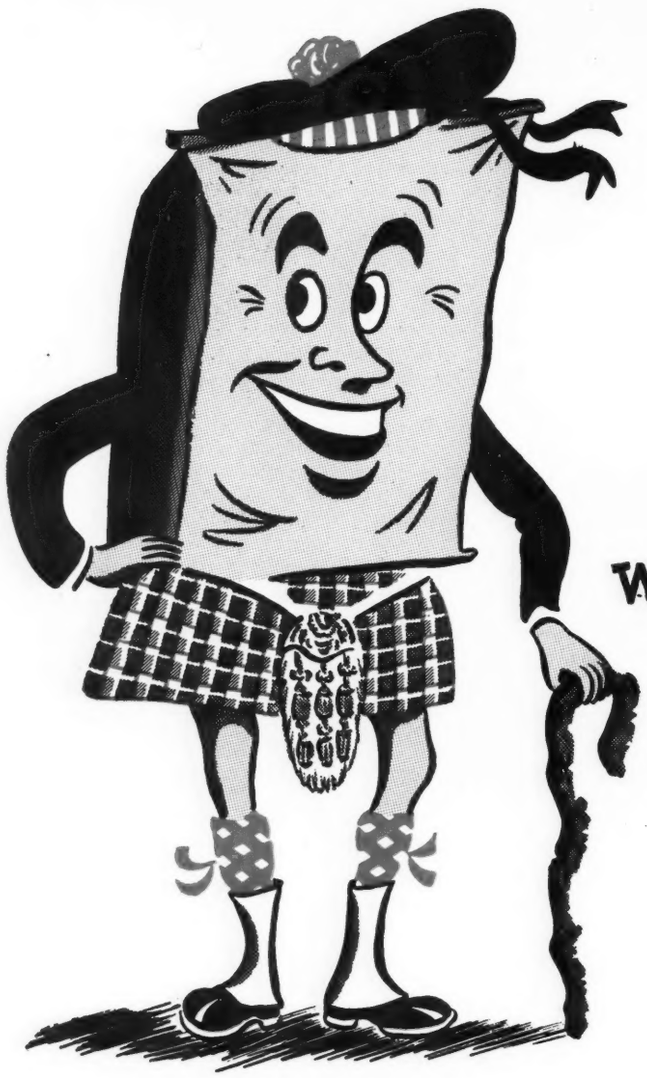
JUL 2 1945

Official Publication

OF

THE AMERICAN SOYBEAN ASSOCIATION

VOLUME 5 • NUMBER 6 JUNE • 1945



"Aye Mon, we *Multiwalls* are a thrifty lot!"

It's a fact, Multiwall Paper Bags are thrifty on three separate counts.

In Your Customers' Plants

1. These tight, siftproof bags deliver 100% of your product . . . eliminate siftage losses while helping to keep storerooms clean.

2. Multiwalls empty clean. Materials do not cling to their smooth interior walls. Retention losses are, therefore, greatly reduced.

In Your Plant

3. St. Regis Bag Packaging Systems speed up weighing, filling and closing operations . . . save manpower and cut down labor costs.

In addition, Multiwall Paper Bags are easy to handle. Results have shown that *one man* can load and stack Multiwall bags as fast as *two men* can handle equal tonnage in heavy fabric sacks or drums.

And, Multiwalls are plenty tough. Made of from 2 to 6 plies of sturdy kraft paper and specially treated sheets . . . designed to meet specific conditions involving excessive dampness, infestation and rough handling.

Get All the Facts

If you are not already using Multiwall Paper Bags, find out how they can help solve your packaging problems. Write for full information *today*.

St. Regis MULTIWALL PAPER BAGS

MULTIPLY PROTECTION • MULTIPLY SALEABILITY

ST. REGIS PAPER COMPANY

TAGGART CORPORATION

NEW YORK 17: 230 Park Ave. CHICAGO 1: 230 No. Michigan Ave.
BALTIMORE 2: 2601 O'Sullivan Bldg. SAN FRANCISCO 4: 1 Montgomery St.

IN CANADA:
St. Regis Paper Co. (Can.) Ltd.
Montreal, Quebec
Vancouver, British Columbia

Boston, Mass. Birmingham, Ala. Dallas, Texas Denver, Colo. No. Kansas City, Mo. Los Angeles, Calif.
New Orleans, La. Franklin, Va. Seattle, Wash. Nazareth, Pa. Toledo, Ohio

THE Soybean Digest

REG. U. S. PAT. OFF.

GEO. M. STRAYER, Editor KENT PELLETT, Managing Editor

Publishers' Representatives: Ewing Hutchison Co., Chicago

Vol. 5 JUNE ☆ 1945 No. 8

Published on the 15th of each month at Hudson, Iowa, by the American Soybean Association. Entered as second class matter November 20, 1940, at the postoffice at Hudson, Iowa, under the Act of March 3, 1879. Forms close on 1st of month. Subscription price to association members, $1.00 per year; to non-members, $1.50 per year.

IN THIS ISSUE

	Page
Chemistry of the Soy J. L. GABBY	7
Soybeans in Canada F. DIMMOCK	8
Victory Mills, Ltd.	9
Soybean Oil O. H. ALDERKS	10
Washington, Iowa, Plant	14
New Purina Plant	14
Troubles of Soya Butter	15
N. R. Ellis of U.S.D.A.	16
Increase of Rowed Beans	18
As Weed Killers	18
Results with Fertilizers	19
Nebraska Yield Contest	19
June Crop Report	20
Oil Chemists Elect	24
Honeymead Sells	24
Grits and Flakes	26
Washington Digest PORTER M. HEDGE	28
Markets and Orders	32

The American Soybean Association

OFFICERS: President, Howard L. Roach, Plainfield, Iowa; Vice President, Walter McLaughlin, Decatur, Ill.; Secretary, J. M. Strayer, Hudson, Iowa; Treasurer, J. B. Edmondson, Clayton, Ind.

DIRECTORS: Ersel Walley, Ft. Wayne, Ind.; John Dries, Saukville, Wis.; Jacob Hartz, Stuttgart, Ark.; David G. Wing, Mechanicsburg, Ohio; Harry A. Plattner, Malta Bend, Mo.; Gilbert Smith, Taylorville, Ill.; John Sand, Marcus, Iowa.

Beans, Butter and Margarine

Land O'Lakes News, publication of Land O'Lakes Creameries, Inc., makes pointed reference in its April issue to the close ties between soybean growers and dairymen:

". . . Ohio dairymen in 1943 purchased $13,372,805 worth of soybean oil meal for feeding their cows, whereas Ohio farmers received only $1,794,778 for soybeans sold to oleomargarine manufacturers.

"From these figures it is plain to see that the farmer's interest, whether he is a raiser of soybeans or strictly a dairyman, lies with the dairymen. Even soybeans grow better on farms where dairying is in a high degree of development."

True enough. The American Soybean Association is deeply appreciative of the dependence of the industry on the dairymen for a part of its market. Some of its officers are and have been dairymen as well as soybean growers.

But this dependence is mutual. Dairymen cannot reach a high state of production without a liberal supply of soybeans or other oilseeds for protein concentrates. And the oil from these oilseeds is bound to compete to a certain extent with butter, whether it goes into salad oil, shortening or margarine, since all food fats are largely interchangeable in the human diet.

This interdependence was apparent in Denmark and Holland before the war. These two leading dairying nations had to import large quantities of oilseeds annually in order to be able to process the necessary protein concentrates for dairy cattle feeding. The resulting oil was used in the manufacture of margarine. Incidentally, this usage of protein concentrates was one of the factors that built up the fertility of Danish soils over a period of years.

Can anybody maintain that Denmark or Holland would have been better off with restrictive laws to hamper or prohibit the use of margarine?

Naturally, the soybean industry is interested in the market for all its products. It is interested in the prosperity of both the dairy and the margarine industries and is not convinced that the prosperity of one necessarily reacts harmfully on the prosperity of the other. It has been shown that taxes and legal restrictions which hamper the consumption of margarine do not result in an increase in the price or consumption of butter. We are interested in the elimination of such restrictions which result in lowering the total consumption of all food fats, and therefore result in a lowered demand for soybean products.

How Does the AAA Stand?

With the Philippines already liberated and liberation of the other oilseeds areas in the Pacific approaching, the whole government postwar policy toward im-

portation of foreign oilseeds has not yet jelled.

In order to ascertain the attitude of Triple A on this question, Howard L. Roach, president of the American Soybean Association, has written an open letter to N. E. Dodd, Triple A chief, at Washington. Mr. Roach's letter follows below.

At the time of going to press Mr. Dodd's answer had not been received.

May 24, 1945

Mr. N. E. Dodd, Chief,
Agricultural Adjustment Administration,
Room 3094 South Agricultural Building,
Washington, D. C.

Dear Mr. Dodd:

The American Soybean Association is greatly concerned about news stories appearing of late to the effect that certain government authorities are advising lower tariffs on products which will compete with products grown on American farms. Our particular concern is regarding the competition which the American farmer will have from imported vegetable oils.

As you well know, the American farmer has gone all out during the war in the production of soybeans to make up for a shortage caused by war conditions, particularly lack of shipping space. The American farmer has grown soybeans as a patriotic move, realizing every time he planted an acre of beans he could plant that same acre to corn and obtain greater revenue therefrom, but he wanted to be patriotic and support the war effort to the fullest extent. He has bought machinery, learned techniques and adjusted his schedule for the continued production of soybeans. Letters from our membership indicates that he is now concerned about a flood of tropical oils coming into the United States either duty free, or with the duties cut considerably.

We would like to know what stand the Triple A takes on this matter. It, no doubt, will be a little while before the new Secretary of Agriculture can decide policies, and we want you to know that the American Soybean Association is very much concerned about lowering the tariff on soybean oil.

Very truly yours,

HOWARD L. ROACH, President
American Soybean Association,
Plainfield, Iowa.

Just In Passing There's real meat in the article by O. H. Alderks on "Soybean Oil." Everybody from grower to refiner must cooperate to turn out a superior product. Question is: How can we keep soy oil from going to the bottom of the list again in its price relationships with other oils after the war? . . . The soya butter battle is a good example of a food product, the purity and wholesomeness of which no one challanges, being stymied by conflicting government rulings . . . Canada refuses to be left off the soybean bandwagon. With the encouragement of the government's breeding program and the new processing mill at Toronto the Dominion's acreage should continue to expand . . . Again the soybean acreage stands to benefit by a cold, wet spring that impeded planting of earlier crops.

Fixo Says:

PLAN FOR SUCCESS!
PLAN WITH NOD-O-GEN

Plan the only safe way . . . on the basis of past experience. Plan to include NOD-O-GEN in your stocks . . . and you build on a long unbroken record of success and profits . . . for both farmers and dealers. With NOD-O-GEN, farmers have increased their yields, grown richer feed and built up the fertility of their soil. Dealers have made loyal friends, enlarged their sales and increased their profits.

Plan your future success now. Arrange to stock NOD-O-GEN from your jobbers or —

Thru Legitimate Jobbers or direct

Farm Laboratory Division
THE ALBERT DICKINSON COMPANY
Chicago Illinois **P.O. Box 788** **Founded 1854**

Southern Office and Warehouse: 218 South President St., Jackson, Mississippi

NOD-O-GEN The Pre-Tested Inoculator
The Crop and Profit "Pepper Upper"

CHEMISTRY OF THE VERSATILE SOY

By J. L. GABBY

Member Soybean Research Council

SMASHING all records as a new cash crop, the simple little soybean has climbed into the brackets of big business. By 1945 it had become a 500 million dollar a year business. The last 50 percent of its bulge in volume was due to the needs of war. The total crop rose to some 200 million bushels. But it had reached half this figure before the United States entered the war. The immense expansion covers less than a 10-year period.

Demand for the major products of the soybean has been strong and continuous. The principal products are soybean oil meal for livestock and poultry feed, and soybean oil used mostly in edible items. The sensational newcomers in the food field have been soy flour, soy grits, and soy flakes, products you are consuming daily in popular pancake and muffin mixes, macaroni, ice cream, bakery goods, sausage and other meat products.

SCIENTIFIC PHASES

Public interest is now turning toward the scientific phases of the soybean. One of these is the chemistry of the product. The seeds of the soybean plant, like all other seeds, are extremely complex in chemical construction. Variations in composition are extreme due to varietal differences and climatic and soil conditions under which they are grown. To try to point out all of these variations or even attempt the complete story of the chemistry of the soybean at this time would be futile. We will bring out only some of the most obvious points and try to give a brief sketch of the major constituents which make up the soybean seed.

Perhaps the best way to start is to point out an average chemical analysis such as we would expect if we sent a sample of soybeans to the chemical, analytical laboratory.

	Pct.
Moisture	12.0
Ash	4.6
Fat	18.0
Fiber	4.0
Protein	37.0

Each of the above classes of materials can be broken down to more simple constituents. A mineral analysis of the ash of soybeans shows a wide variety of elements present. Potassium, phosphorus, sodium and calcium head the list in amounts present.

The fraction which is determined for fat usually contains all the substances which are soluble in ether. To list these substances in percentages as in the case of the minerals is impossible, but some of the constituents are known. This fraction contains the oil or the natural tri-glycerides, pigments, steroids and steroid-like compounds, phospholipids, anti-oxidants, tocopherols, fat soluble vitamins in traces as they exist in the soybeans, and other oil or solvent soluble materials. It is of interest to note that while the oil contains these several substances it does not contain each of them in the ratio in which they are present in the soybeans. The amount of phospholipids, for example, removed with oil extraction is not quantitative to the same extent as the oil. Many of these oil soluble materials apparently occur in the soybeans in combination with other constituents such as carbohydrates or proteins. These facts are important from the standpoint of nutritional qualities of soybean oil meal since in many cases the animal can utilize these combinations of materials to good advantage.

Soybeans and soybean oil meal are associated with the term "protein concentrate." This infers, and correctly so, that the most important fraction is the protein. The amount of protein in soybeans, as determined by the Kjeldahl nitrogen procedure using a factor of 6.25, is approximately 40 percent. From this figure we find variations in soybean oil meal which are dependent upon the amount of oil that has been removed in processing.

The chemistry involved in the changes which take place in the proteins when they are put through the modern processing equipment for producing soybean oil meal is unknown, but the fact that profound changes do take place is well known. Chemical reactions take place during heat processing which change the structure of the proteins in some way so that the feeding value for critical animals is greatly improved.

AMINO ACIDS

Through the years many attempts have been made to analyze the proteins of the soybean for the various amino acids they contain. As methods and techniques for these determinations have improved, the determined values have changed so the true picture may still not be drawn. We do, however, have at least some ideas which are helpful. We know that the soybean protein contains some of each of the essential amino acids.

Since soybean oil meal is not used as the only source of food for any animal, the figures on amino acid composition aid materially in compounding mixtures with other feeding materials so that the final product as fed will have a balanced amino acid composition to meet the requirements of the animal. Information of this type will lead to better and more economical feeding of livestock.

Soybeans contain carbohydrates, but differ from most other farm products in that the carbohydrate fraction contains very little or no starch. The main constituents are sugars and cellular materials like cellulose. There are several different sugars present which have been identified.

We now have covered the various chemical ingredients which are usually determined by chemical analyses, but have not touched those important trace substances we call vitamins. While the percentages of these materials are extremely low, we cannot say that they are unimportant since the amounts required by animals are also very small.

The amounts present naturally vary some from lot to lot, but a recent compilation of average figures gives the following values for one pound of a low fat processed soy product.

Vitamin A	200	I.U.
Thiamin	1,000	I.U.
Ascorbic Acid	20	I.U.
Vitamin D	10	I.U.
Vitamin E	135	Evans Rat Units
Riboflavin	1,800	Micrograms
Vitamin K	200	Micrograms
Pantothenic Acid	6,000	Micrograms
Niacin	20,000	Micrograms
Pyridoxin	2,800	Micrograms
Biotin	300	Micrograms
Inositol	900	Mgs.
Choline	1,000	Mgs.

After checking through the entire list of chemical substances which appear in soybeans and soybean oil meal, we can say that all of the known required nutrients for feeding animals are present. However, when we check our list again and approach it from a quantitative rather than a qualitative point of view we find that certain of the required nutrients are present in such small amounts that they are insignificant in quantity. Therefore the soybean is not a complete food in itself, but rather an excellent source of protein, certain mineral constituents and a valuable source of certain vitamins for use in conjunction with other feed ingredients.

Today the value of soybean oil meal for animals has been proved through actual feeding experience, and it now is the leading protein concentrate for animal and poultry feeding.

• *This is the first of a series of articles by well known nutrition authorities on feeding livestock and poultry to appear in the* DIGEST *in coming months.*

SOYBEAN GROWING IN CANADA

• *Canadian soybean production has more than quadrupled in four years, and with one of the finest processing mills on the continent located at Toronto, the crop is ready to go places.*

One of the soybean breeding nurseries at the Division of Forage Plants, Central Experimental Farm, Ottawa. In these nurseries hundreds of new selections, hybrids and varieties from other countries are tested annually.

By F. DIMMOCK

In Charge Soybean Breeding Work
Central Experimental Farm, Ottawa

There seems to be some doubt in the minds of many people as to whether or not soybeans can be grown successfully in Canada. We are frequently asked such questions as, can soybeans be grown in Canada, are adapted varieties available, and do they yield well, and are there commercial markets available for disposal of the crop. To all of these questions we are able to answer in the affirmative.

The soybean is no stranger to Canada. As a matter of fact, the 50th anniversary of its arrival in this country will be celebrated this year, for it was first grown in trial plots at Guelph, Ontario, in 1895. It is true that it was largely lost sight of during the next 30 years, and even today soybean acreage in Canada is relatively insignificant in comparsion with the phenomenal developments which have taken place in the production and utilization of this crop in recent years in the United States. But there are some hopeful signs, one of which is the increase in acreage which has been recorded in the past three or four years, and another the increased facilities for marketing.

According to official statistics the soybean crop in Canada totalled approximately 45,000 acres in 1944, of which 44,700 acres were grown in Ontario. But what is of more interest is the fact that the 44,700 acres yielded a total of 845,000 bushels of beans which works out to an average of 18.9 bushels per acre for the whole area. This is a good yield and compares favorably with average production in the best areas of the United States. Until 1940 the average acreage in Canada was only 10,000 acres, so it is readily seen that considerable progress has been made.

So far commercial production of soybeans in Canada has been confined almost entirely to the province of Ontario where it is admitted that conditions are most favorable to its production. But this does not mean that the other provinces cannot grow soybeans, for good crops have been grown and are being grown in Manitoba, British Columbia and Quebec. There are varieties available which can be grown successfully in almost every province, but until now Ontario has provided the only commercial outlets for the marketing of any large scale production. Only last year one of the finest and most up-to-date processing plants on the whole continent was put into operation, and is capable of handling 3 million bushels of soybeans annually.

That soybeans of outstanding quality can be grown in Canada is proven by the fact that two Ontario farmers won no less than six grand championships in nine years in open competition at the International Hay and Grain Show, Chicago. While the winning of these blue ribbons was important, of still greater importance to the trade, however, is the established fact that the protein and oil content of Canadian soybeans is fully the equal of those produced elsewhere.

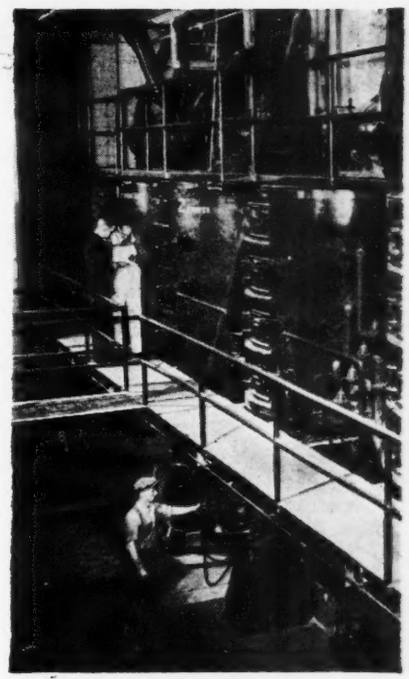
While it is true that the soybean has a wide adaptation because of the wide range in maturity of the large number of varieties available, it has been our experience nevertheless that individual varieties usually have a rather limited adaptation. It has therefore been necessary for provincial and federal authorities in Canada to test varieties on a wide scale in order to determine varietal adaptations. Frequently it has been necessary to select or develop new varieties for many areas for which none of the existing varieties were suited. Of the varieties grown at present, Mandarin (Ottawa), and A. K. (Harrow) are the most widely used. Mandarin (Ottawa) is early maturing and possesses many other excellent characteristics, among them being the ability to yield well, high resistance to lodging, and good plant type. A. K. (Harrow) is later in maturity, higher-yielding and produces seed of excellent quality. Both are selections which have been developed as the result of the breeding program conducted by the Dominion Department of Agriculture. Other popular varieties are O.A.C. No. 211 and Manchu. More recently new varieties made available through breeding work in the Dominion are Pagoda, Goldsoy, Kabott, Capital and Harman. Some of these Canadian productions have mi-

(Continued on page 9)

Experimental Farm breeding nursery showing difference in time of maturity of strains.

CANADA CLIMBS ABOARD SOYBEAN BANDWAGON WITH

Victory Mills Ltd.



Interior view of Victory Mills plant.

Sixteen months ago, five and a half acres of land, strategically located on Toronto's busy waterfront, stood vacant. Today, a big section of that empty land is occupied by a plant, humming with activity. And that plant, Victory Mills Limited, is the last word in mechanical ingenuity and oil processing technology. Bounded on two sides by deep water anchorage, as well as served by railway sidings, every operation from cargo boat or freight car unloading, through every stage of the processing, is completely mechanical. An important part of the plant will operate the continuous solvent extraction method of processing oil-bearing crops. From the first vision of the industrialists who conceived it to the engineer's final blueprint, the plant is designed to get the utmost out of the humble soybean.

Victory Mills Limited is the answer to the Canadian vegetable oil paradox; Canada is one of the largest consumers, per capita, of vegetable oils in the world . . . yet, Canada is one of the lowest producers. The fault has been inadequate processing facilities. Consequently, Canadian farmers could see no point to growing soybeans on a big scale.

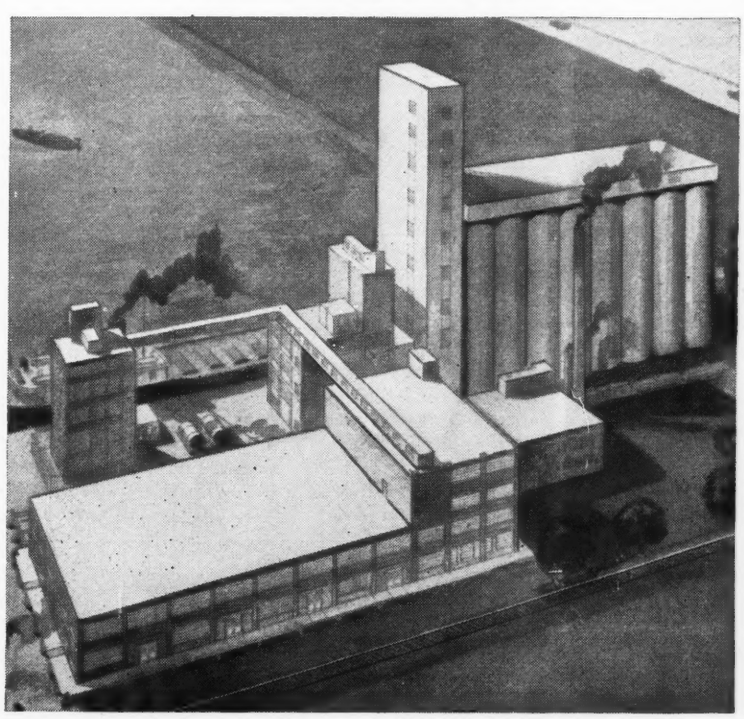
On the other hand, Canadian industrialists were reluctant to build a modern soybean plant, if they had to rely on imports. This picture changed almost overnight owing to the courage and foresight of a group of Canadian business men, headed by E. P. Taylor, chairman of the board of Canadian Breweries Limited, and also, chairman of the board of Victory Mills Limited. Convinced that the soybean had a great future, and convinced that Canadian farmers would be quick to take advantage of opportunity, these men built Victory Mills. Their judgment has already been proven sound. Canadian soybean acreage is starting to jump. In 1942, Canadian production of soybeans was a trifling 200,000 bushels. Last year 686,600 bushels were grown. That's a long way from Victory Mills' present 3 million bushel capacity so Canada will have to depend on U. S. farmers for some time to come. Nevertheless, everything is stepping along in the right direction . . . Canadian farmers are turning to soybeans in ever increasing numbers . . . and Canadian feed and food manufacturers are more and more realizing the phenomenal nutritive value of soybean products.

Co-incident with the interest which farmers are showing towards soybeans is the valuable research which is being done by the agricultural departments of the Dominion and Provincial governments. For some years the Dominion Department of Agriculture's Experimental Farms have been striving to develop varieties to suit the different growing and soil conditions, throughout Canada. Already they have met with success in a number of recently developed varieties. Needless to say the Department of Agriculture is continuing its efforts and Canadian farmers can look forward to an increasing selection of tested and proven varieties. With the vast agricultural lands available in Canada, the Dominion Department of Agriculture feels that there is no reason why Canada cannot be eventually self-sufficient in fats and oils and high protein feed supplements. It is just a matter of developing the right soybean varieties.

There is no doubt about it. Canadian soybean acreage and the market for soybeans is expanding. Victory Mills Limited is the link between the two . . . a promise to greater agricultural prosperity for Canada . . . a major supplies to Canadian industry.

—s b d—

Architect's drawing of Victory Mills.



CANADA

(Continued from page 8)

grated to the United States where they have been reported to have done extremely well.

The stage is all set in Canada for an expansion in soybean production. High yielding, well adapted varieties capable of producing seed of high quality are available and good market facilities have been provided. Last year a ceiling price of $2.15 was established for No. 1 and 2 yellow grades, and this may well be the incentive for increased production in 1945. The present objective is for more soybeans produced over a much wider area.

SOYBEAN OIL

A STUDY OF EDIBLE AND INDUSTRIAL USES • BETTER GROWING PRACTICE MEANS BETTER OIL • NEED SOY OIL WITH LOWER IODINE VALUE

By O. H. ALDERKS
Member Soybean Research Council

SOYBEAN OIL is "coming of age" in the U. S. Graph No. 1 shows at a glance the relative U. S. production of the six most important vegetable oils.

Although the U. S. consumed annually over 100 million pounds of soybean oil for five consecutive years during World War I, 1916 to 1920 inclusive — reaching a high of 335 million pounds in 1918, all of this oil was imported, much of it was of relatively poor quality and U. S. usage dropped markedly after 1920. It was not until 1922 that domestic oil was produced in merchantable quantities. The growth of production was slow at first and then progressed at a more rapid pace, as shown by the solid curve on Graph No. 1, until in 1944, it equaled the production of cottonseed oil for the first time.

How much of this record current high domestic production is a result of World War II, brought about because of curtailment of importation of vegetable oils from the Pacific island regions? How much of this current high production and usage is likely to remain in postwar times? Perhaps an examination of the usage of soybean oil in the past decade will help in part to answer this question.

USAGE OF SOYBEAN OIL

Table No. 2 shows at a glance the main usage of soybean oil and the relative growth in terms of usage in the various products. One notes immediately that here we have an ambi-dextrous oil, filling on the one hand the requirements for edible oils and on the other having characteristics of the drying oils.

The tabulation shows also the marked increase in usage of soybean oil in recent years for edible purposes, namely, in shortenings, margarine and salad oils and the relative slower increased usage of soybean oil for drying oil purposes.

For example, in 1943 the usage of soybean oil in edible products was 891 million pounds or about 96 percent of the total. This was due in part to the allocation of oils in 1943, but even in 1940 and 1936, the respective percentage usage of soybean oil in edible products was 86 percent and 87 percent. The main usage of soybean oil in the U. S. in the past 10 years has been in edible products.

USAGE OF SOYBEAN AND COMPETING OILS

While Table No. 2 lists the various products in which soybean oil has been used and shows the annual amounts used in these products, it is of further interest to know the relative importance of soybean oil compared with other competing oils in these products.

To show the relative importance of various oils in these products, a number of diagrams have been prepared which show the percentage usage of the competing oils. Above each circle the total oil used in the product is shown. Diagrams for 1936, 1940 and 1943 have been drawn side by side to show the recent trends in soybean oil usage during the past eight years.

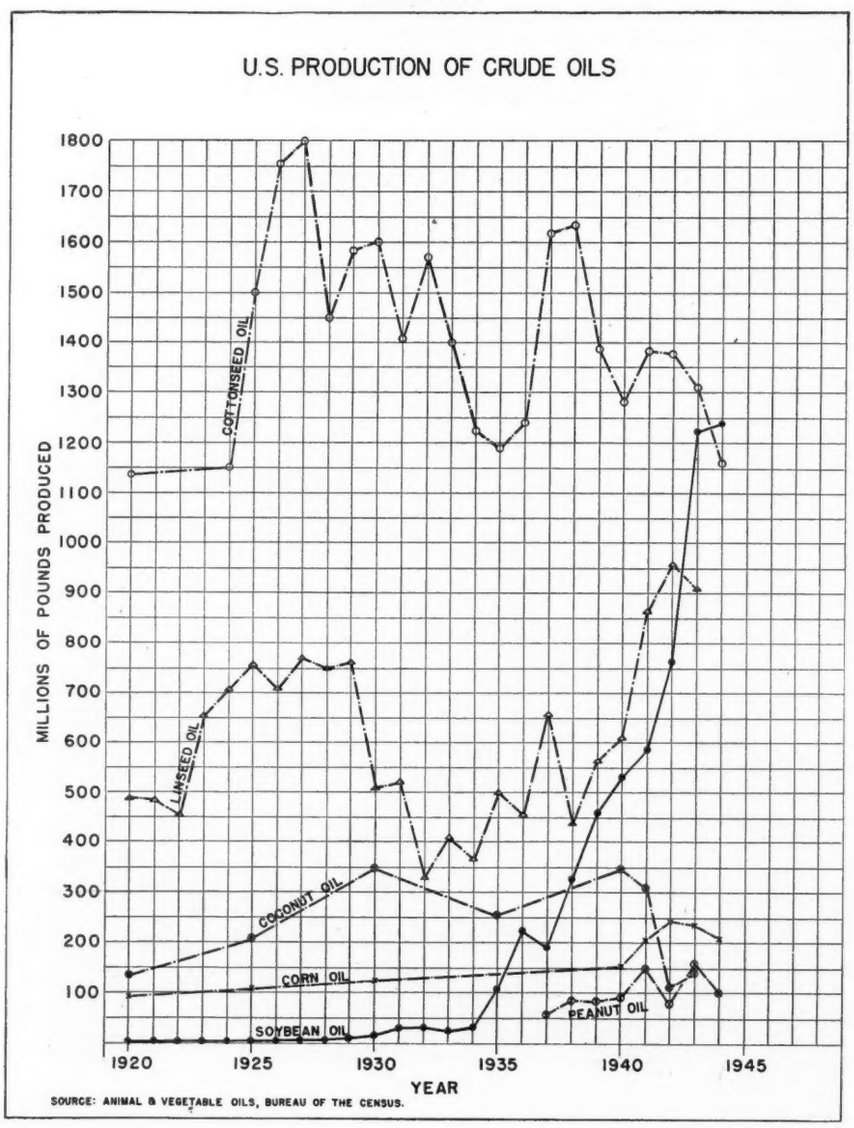
The annual usage of fats and oils in shortening is shown in Table No. 3, 1929-1943; in margarine, Table No. 4, 1913-1943; and in paint, varnish, linoleum, oil cloth and printing inks, Table No. 5, 1912-1944.

SOYBEAN OIL IN EDIBLE PRODUCTS

The diagrams need little comment, —the increased usage of soybean oil since 1936 and 1940 has been marked in shortening, margarine and salad-cooking oils.

In shortening the 1943 usage of soybean oil is equal to that of cottonseed oil. It has replaced considerable cottonseed oil which has been shifted to other edible products, also it has replaced palm, sesame and other miscellaneous oils not recently available. In shortening, soybean oil has the following desirable characteristics; generally low bleaching costs, produces whiter

GRAPH No. 1



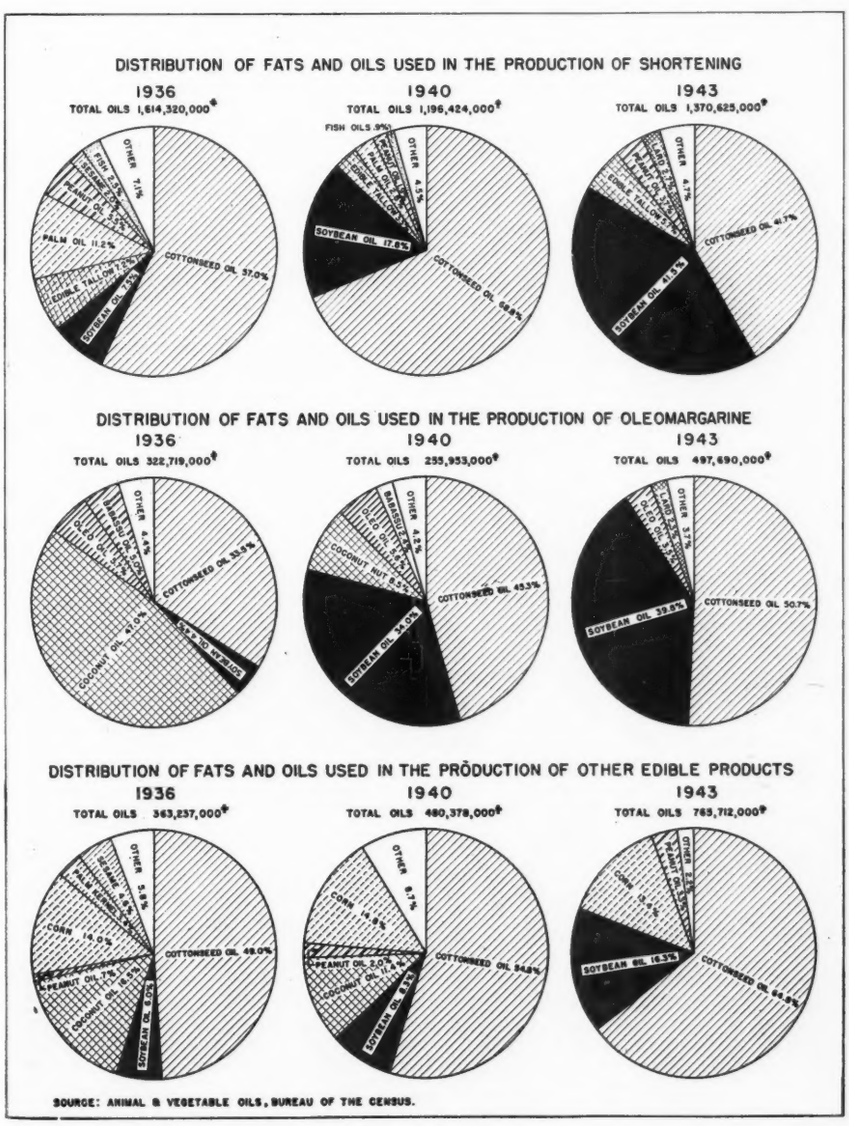
• *The author of this comprehensive article on soybean oil, O. H. Alderks of Cincinnati, Ohio, has devoted considerable time to the scientific study of the product and is widely known in the vegetable oils trade as well as among oil chemists. He is a member of the Soybean Research Council, a group of scientists engaged in the study of various phases of the soybean and its products. Mr. Alderks has centered his efforts upon the analysis of soybean oil.*

products, good consistency behavior, good rancidity behavior. Its undesirable characteristics are: poor flavor stability—particularly of the lower grade oils—and additional cost to hydrogenate.

In margarine the increased soybean oil usage since 1936 has been equally as marked as in shortening. It has replaced all coconut, babassu and similar oils and accounts for about 40 percent of margarine fat usage.

The usage of soybean oil in salad, cooking, etc. fats was about 22 million pounds in 1936. In 1943 this usage had increased to 124 million pounds. Here again it replaced the unavailable Pacific island oils—coconut, palm, etc.

It is generally well known that all manufacturers of edible products — shortening, margarine, salad-cooking oils, etc. — have used soybean oil in the advertised quality A brands. Generally the percentage used in these quality brands has been *limited* because the flavor stability problem has not been completely solved. It can be said, however, that much progress has been made on this problem in recent years and today all edible fat manufacturers are using much larger quantities of soybean oil without serious quality difficulty than they would have thought safe for their B brands several years ago. This development means that a large portion of the wartime usage will hold over in the postwar vegetable edible oil industry. This progress has resulted from a rapid stock turnover from grocers' shelves because of rationing of fat stocks. Also, marked improvement has resulted from improved refining and water washing technique and the development of better subsequent processing, as, for example, better selective hydrogenation. (1) and (2)



SOURCE: ANIMAL & VEGETABLE OILS, BUREAU OF THE CENSUS.

BETTER PRACTICES AFFECT QUALITY

All of the above items have contributed considerably to making soybean oil a higher quality product, but equally important is the generally improved processing of the entire soybean industry, beginning with the planting of better varieties of beans adapted to the various regions, improved farm practices such as better weed control, better and quicker harvesting of the beans, prompt drying of the beans when necessary, better storage of the beans and improved methods of oil recovery, as for example, solvent extraction. Each of these items plays an important role, more than is generally realized, in producing a high quality stable oil.

Briefly, oil of the highest quality can be obtained only from clean, fully matured, sound, fairly dry, yellow soybeans. Any deviation in bean quality results in extra processing and generally poorer flavor stability. The degree of damage may vary considerably. For example, green oil produced from frost bitten beans in which full maturity of the bean was arrested, will produce, after thorough bleaching, a final oil of fairly good quality and stability. However, field damaged soybeans, in which the beans have become discolored and partially decayed by weathering, produce a definitely inferior quality oil of poor flavor stability (3). Beans of damaged quality can be blended with prime beans at processing plants in order to maintain plant processing capacity and so "lose" the darker oil by blending with prime oil but in so doing, a large quantity of contaminated oil with poorer keeping quality, namely, poorer flavor stability is obtained.

The manner of processing soybeans is also important. It is generally agreed that soybean oil produced by the usual hydraulic pressing equipment is slightly inferior in quality to normal quality expeller oil or to solvent extracted oil which is generally of the highest quality.

In the case of the production of hydraulic soybean oil, it has been reported(4) that humidification of the soybeans above 12 percent will generally increase the yield of crude oil obtainable but at the expense of oil quality as measured by flavor stability. From a flavor stability point of view, soybeans to be processed in hydraulic equip-

ment should be dried to about 10-11 percent moisture content.

The statistical review of the usage of soybean oil presented above showed that approximately 86 percent to 95 percent of the crude soybean oil produced in recent years has been used in the edible oil industry. This oil, whether of the highest or poorest quality with respect to those properties in which the edible fat food processor is interested, has commanded the same price. Is it to the best self interest of the soybean industry to not set up premiums for the production of highest quality oil? Perhaps this is particularly important in the postwar period when soybean oil will have to compete with a variety of bland oils. By producing and segregating the highest quality soybean oils (premium oil) perhaps a very sizable quantity of soybean oil now used in quality brands can be retained there.

There are compelling reasons as, for example, advertising value, why edible fat manufacturers would prefer the usage of *domestic* soybean oil in their products. However, the American public appears to prefer edible products which have a bland flavor and it is, therefore, important to the soybean industry that the work at the Northern Regional Research Laboratory and in other laboratories on improving the flavor stability of soybean oil be continued actively. This is undoubtedly the most important problem facing the continued usage of soybean oil in some edible products in the postwar period.

Since about 50 percent of the value of the soybean crop is obtained from the sale of crude oil, perhaps the adoption of a grading scale for soybean oil which reflects its value to the edible oils and fats food processor, and which gives a premium to the crude oil processor for producing highest quality oil, will be to the best interest of the soybean industry.

VARIETIES WITH BETTER OIL

In connection with the production of soybean oils of better quality for edible usage, it is gratifying to report that current efforts of some plant agronomists are being directed not only to increasing the oil yield but also to reducing the linolenic acid content in soybean oil.

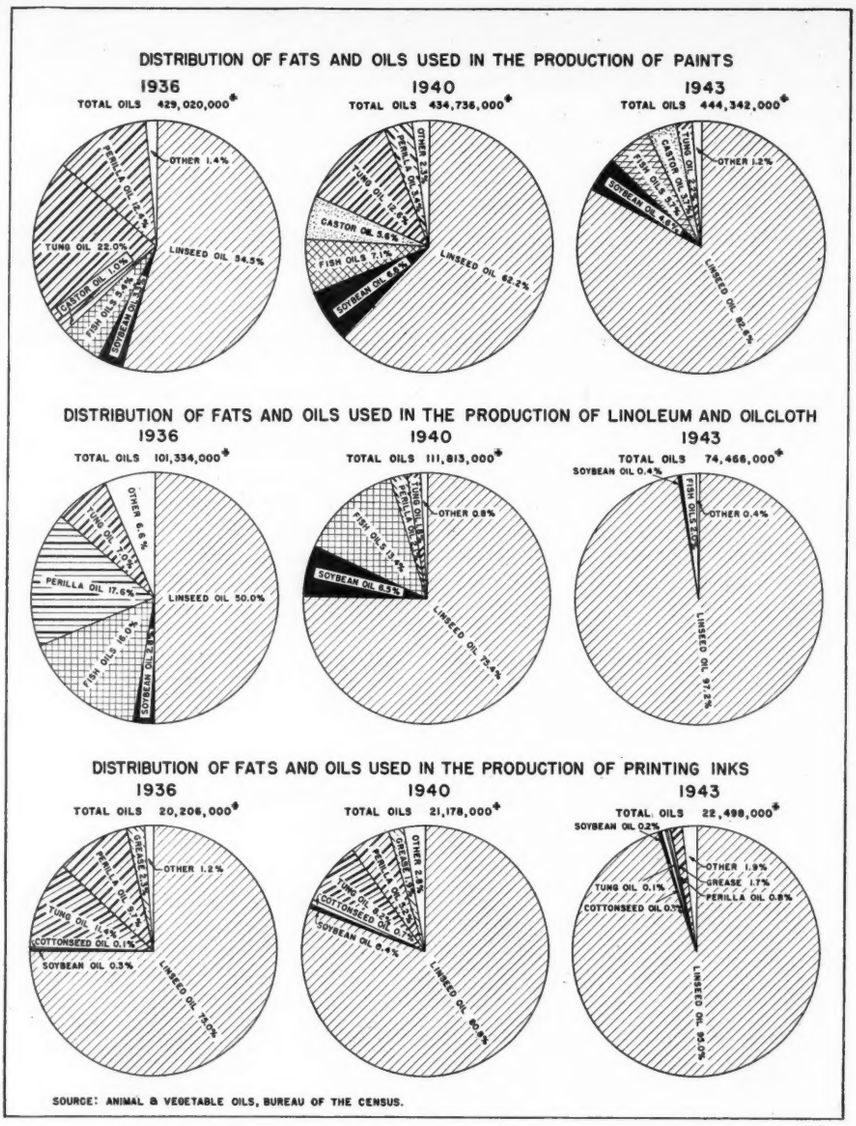


Table No. 6 shows the composition of peanut, cottonseed, corn, soybean and linseed oils. Soybean oil owes its drying properties to the presence of 2.2 percent to 8.1 percent linolenic acid. In linseed oil this fraction is present from 25.7 to 58.3 percent. Linolenic acid is a highly unsaturated material having three unsaturated bonds. It is generally agreed by various investigators that the difficulty in maintaining flavor stability of soybean oil is associated with the presence of this unsaturated material and it will be noted by referring to Table No. 6, that such bland flavored oils as peanut, cottonseed and corn do not contain linolenic acid.

In the past, agronomists have centered

TABLE No. 2. Usage of Soybean Oil in Various Products. (1000 Lbs.)

	Shortening	Oleo-margarine	Other** Edible Products	Soap	Paint & Varnish	Linoleum & Oilcloth	Printing Inks
1929	82	11	—	6,396	5,815	3,229	71
1930	—	—	—	5,000	—	—	—
1931	10,869	623	—	3,816	6,256	2,612	33
1932	4,889	3	180	5,571	7,485	4,061	47
1933	489	7	460	4,235	8,568	5,641	65
1934	2,735	24	509	1,354	10,451	2,843	59
1935	52,452	1,740	9,421	2,549	13,003	4,816	52
1936	113,897	14,262	21,598	5,023	14,471	2,886	62
1937	90,798	31,793	15,530	10,274	16,143	934	80
1938	137,133	39,885	11,280	10,897	15,183	3,605	59
1939	201,599	70,822	32,345	11,177	21,720	6,438	62
1940	212,317	87,106	39,980	17,612	29,828	7,254	82
1941	215,967	75,634	47,976	24,737	41,594	7,666	255
1942	335,355	133,346	60,857	31,510	25,307	421	141
1943	568,405	198,020	124,562	15,428	20,462	273	48
1944*	449,643	157,176	133,903	2,436	14,558	40	18

*First three quarters, 1944.
**Mainly cooking, frying and salad oils.
U. S. Department of Commerce, Animal and Vegetable Fats and Oils.

TABLE No. 6. Composition and Properties of Oils.

	Peanut	Cottonseed	Corn	Soybean	Linseed
Oleic	50.6-71.5	22.9-33.15	45.4-48.8	21.0-33.6	21.7-37.6
Linoleic	13.0-26.0	39.35-47.8	34.0-40.9	49.3-58.8	3.3-23.1
Linolenic	—	—	—	2.2-8.1	25.7-58.3
Myristic	—	.3-2.1	1.7	—	—
Palmitic	6.0-8.5	19.1-23.4	7.7-11.0	6.5-9.7	3.8-6.9
Stearic	2.6-6.0	1.1-2.9	2.9-3.5	2.4-4.4	2.2-4.8
Arachidic	2.6-4.9	0.1-1.3	0.4	.7- .9	.22-.86
Lignoceric	2.5-3.0	—	0.2	.1	.0-36
Unsap. Mat.	.2- .3	0.9	1.7	.6	0.6-1.6
Smoke Pt.	464°F	508	440	492	320
Fire Pt.	692	644	678	673	680
Flash Pt.	632	582	618	618	588
Iodine Value	83-95	103-115	116-130	103-152	170-204
Normal I.V.	90	109	126	130	180

From:—"Vegetable Fats and Oils," George S. Jamieson (Reinhold Publishing Corporation, New York, 2nd Edition, 1943.)
"Smoke, Flash and Fire Points for Commercial Oils," Oil & Soap, 9,69 (1932).
"A Short Hand-book of Oil Analysis," Augustus H. Gill (J. B. Lippincott Company, Philadelphia, 11th Edition, 1927) p. 266.

their attention on trying to improve the drying properties of soybean oil by increasing the linolenic acid content of soybean oil, namely, producing an oil of higher iodine value (a measure for degree of unsaturation). Since 86 percent to 95 percent of soybean oil usage in the past eight years has found its outlet in edible products, it follows that attention should be directed at improving these properties which will make it a more desirable oil for edible usage. *Work should be directed at reducing the linolenic acid content to the lowest possible level.*

SOYBEAN OIL IN DRYING INDUSTRY

An important approach to improving the quality of soybean oil, both as an edible oil and as a drying oil has developed during recent years, namely, the separation of the saturated from the unsaturated glycerides by several methods. These processes, both the separation of glycerides and of the fatty acids have been covered by numerous U. S. patents and other publications. A few typical references are listed and these will indicate others. (5) to (13)

The purpose of all these processes is to separate oils, soybean oil for example, into two or more fractions — one composed of mostly saturated triglycerides having improved flavor and rancidity stability and other desirable characteristics for various food usage; and the other fraction containing mostly unsaturated triglycerides having desirable "drying" properties.

Commercial units are in operation processing considerable quantities of linseed, soybean, and some other oils. Edibility results on some samples of soybean and linseed oil raffinates which the writer has seen, showed that the soybean material was equal in flavor quality to regular soybean oil while the flavor quality of the linseed oil fraction was not satisfactory for edible purposes.

No doubt, further development of these processes will improve the quality of some raffinates for edible usage. However, unless these fractions are definitely superior, they will not be able to carry any of the additional processing costs and these costs will have to be added to the unsaturated fractions. The unsaturated fractions are reported to have definitely desirable characteristics for various uses in the drying oil industry. These synthetic drying oils — whether the segregated oil or fatty acid (re-esterified), or alkyd resin, or conjugated oil type — have specific desirable characteristics which add to their value. With further development, increased usage of soybean oil may be expected for drying purposes.

The average last 10 year price of six U. S. vegetable oils discussed above was as follows: (1935-1944)

Crude Linseed	$ .1057 Lb.
Crude Peanut Oil	.0942 Lb.
Crude Corn Oil	.0939 Lb.
Crude Cottonseed Oil	.0912 Lb.
Crude Coconut Oil	.0835 Lb.*
Crude Soybean Oil	.0826 Lb.

*Includes $ .03 lb. excise tax.

TABLE No. 3. Materials Used in Manufacture of Shortening.

Calendar Year	Cottonseed Oil	Soybean Oil	Peanut Oil	Coconut Oil	Corn Oil	Palm Oil	Sesame Oil	Lard	Edible Animal Stearin	Oleo Oil	Tallow Edible	Fish Oils
1929	1,161,848	82	3,586	72,145	25,459	1,191	5,215	23,123	44,138	7,553	25,556	14,921
1931	928,489	10,869	5,960	34,132	6,616	34,536	83,817	8,860	27,220	10,004	69,548	16,676
1932	834,367	4,889	3,502	8,332	3,067	22,126	7,797	5,636	17,357	1,134	45,708	11,520
1933	852,843	489	3,330	7,117	1,128	21,116	7,371	3,171	17,105	294	46,437	106,247
1934	1,058,733	2,735	8,837	9,045	1,895	16,717	4,720	2,635	21,517	764	73,416	10,775
1935	985,798	52,452	90,900	44,034	2,815	114,362	34,967	2,252	27,026	126	120,384	27,671
1936	918,866	113,897	88,479	38,427	430	168,808	33,120	4,503	36,358	1,839	116,908	36,649
1937	1,209,596	90,798	58,141	12,531	1,611	123,677	29,269	915	29,664	242	66,278	21,284
1938	1,040,162	143,318	52,402	26,199	399	115,033	5,435	2,825	32,845	291	74,251	16,529
1939	904,950	201,599	51,713	20,659	1,453	113,078	724	7,398	25,574	470	56,671	20,321
1940	823,359	212,317	22,516	17,576	746	33,224	24	16,786	16,940	880	39,595	10,902
1941	888,733	215,967	81,905	17,576	62	33,224	24	†50,787	23,103	1,282	41,227	6,165
1942	639,564	335,555	37,817	4,961	4,093	29,303	2	†61,632	30,701	663	55,777	5,750
1943	572,208	568,405	50,886	3	6,356	852	4	†36,407	29,726	2,660	78,552	12,584

†Includes rendered pork fat, which was not classified separately before 1941.
From:—Oil and Fats Statistics.

TABLE No. 4. Fats and Oils Used in the Manufacture of Margarine. Year beg. July 1913-29. Calendar years 1930-43.

Year beginning July	Butter 1000 Lbs.	Lard Neutral 1/ 1000 Lbs.	Oleo Oil 1000 Lbs.	Oleo-stearine 1000 Lbs.	Oleo stock 1000 Lbs.	Coconut 1000 Lbs.	Cottonseed 1000 Lbs.	Soybean 1000 Lbs.	Peanut 1000 Lbs.	All other fats and oils 2/ 1000 Lbs.	Total fats and oils 1000 Lbs.
1913	6,123	23,287	57,549	1,698	—	322	23,206	715	4,214	4,871	121,985
1914	4,694	24,904	55,615	1,764	5	300	26,556	369	2,850	3,737	120,794
1915	2,152	33,445	68,986	2,036	397	563	49,959	2,123	5,335	2,907	167,903
1916	3,316	42,415	95,933	2,459	3,458	19,614	63,497	6,570	10,493	3,373	251,128
1917	4,548	45,702	96,378	3,427	7,526	61,773	36,454	—	21,593	60	277,461
1918	5,680	45,764	97,464	2,456	6,342	69,640	37,846	—	38,764	49	303,996
1919	6,845	38,456	89,842	2,132	5,804	80,784	39,450	—	48,346	35	311,694
1920	1,499	39,268	49,676	4,858	2,065	103,112	18,533	461	16,332	7,828	233,632
1921	1,107	27,057	40,980	4,574	2,143	57,394	15,420	—	11,625	—	160,300
1922	1,576	29,568	46,645	4,815	2,322	65,656	18,757	—	6,922	—	176,261
1923	1,900	32,210	52,265	5,317	2,756	83,059	20,640	—	5,656	893	204,696
1924	1,509	25,674	44,102	5,250	3,183	79,449	20,966	—	4,392	964	185,489
1925	2,330	25,172	47,418	5,314	3,082	98,307	25,608	1	5,257	1,616	214,105
1926	2,070	24,872	48,741	5,145	2,552	107,654	23,372	33	4,872	1,293	220,603
1927	2,484	25,036	45,477	5,532	1,738	141,000	24,801	—	5,459	1,288	252,815
1928	2,611	24,189	47,185	5,834	1,294	171,411	28,173	—	6,617	1,402	288,716
1929	2,616	19,632	45,322	6,269	1,189	185,066	30,214	619	5,714	1,170	297,811
Calendar year											
1930	1,687	14,905	38,914	6,024	1,278	177,989	27,445	2,257	5,785	1,121	277,405
1931	331	9,665	18,785	4,883	816	133,117	16,027	623	4,598	2,768	191,613
1932	38	9,413	12,454	3,684	469	123,219	15,096	3	2,518	320	167,214
1933	7	8,959	15,095	3,120	829	150,096	17,997	7	2,635	885	199,630
1934	11	7,486	21,872	3,478	1,454	123,678	54,778	24	2,744	71	215,596
1935	2	3,005	18,226	2,612	2,389	174,314	99,505	1,740	4,368	2,514	308,675
1936	—	2,199	18,330	3,550	1,930	150,465	108,106	14,261	4,140	21,307	324,648
1937	—	1,748	12,278	3,375	1,318	73,806	173,617	31,791	2,880	25,413	326,226
1938	—	1,464	13,411	3,282	1,532	89,420	142,858	39,885	3,593	96,725	312,500
1939	—	1,355	11,866	3,067	1,042	38,519	98,656	70,822	2,445	14,986	242,758
1940	—	5,100	14,332	3,386	1,260	21,780	115,946	87,103	1,730	6,752	257,389
1941	—	8,300	18,415	3,058	1,919	29,786	149,930	75,634	2,210	8,933	297,185
1942	3	8,133	22,495	2,919	3,940	3,491	166,444	133,346	920	4,860	346,551
1943	—	10,694	17,236	3,448	2,819	—	252,109	198,020	4,564	11,304	500,194

1/ Quoted as "lard and neutral lard," 1913-14.
2/ See tabulation of minor fats and oils for items separately stated as available.
From:—Oleomargarine—U. S. Dept. of Agriculture. August 1936.

TABLE No. 5. Oils Used in the Manufacture of Paint, Varnish, Linoleum, Oilcloth and Printing Inks. (1912-44)

Year	Linseed Oil Used in paint, varnish, linoleum, oilcloth, and printing inks 1000 Lbs.	Linseed Oil used in other products 1000 Lbs.	Total apparent disappearance of Linseed Oil 1000 Lbs.	Tung Oil 1000 Lbs.	Perilla Oil 1000 Lbs.	Oiticica Oil 1000 Lbs.	Castor Oil 1/ 1000 Lbs.	Fish Oil 1000 Lbs.	Soybean Oil 1000 Lbs.
1912	—	—	460,639	42,707	—	—	—	—	—
1914	—	—	509,777	30,031	42	—	—	—	—
1916	—	—	526,117	57,517	168	—	—	—	—
1918	—	—	369,842	41,613	922	—	—	—	—
1920	—	—	492,400	59,440	7,582	—	—	—	—
1922	—	—	640,069	67,694	2,208	—	—	—	—
1923	—	—	677,700	82,491	6,441	—	—	—	—
1924	—	—	706,968	78,036	3,716	—	—	—	—
1925	—	—	726,085	86,705	6,017	—	—	—	—
1926	—	—	714,188	92,278	7,401	—	—	—	—
1927	—	—	755,516	84,668	5,358	—	—	—	—
1928	—	—	785,482	95,367	2,011	—	—	—	—
1929	—	—	788,506	109,530	5,574	—	—	—	—
1930	—	—	544,292	99,581	8,838	—	—	—	—
1931	471,318	7,497	478,815	91,160	12,353	—	1,936	26,989	8,901
1932	353,989	4,477	358,466	75,081	12,071	—	1,608	19,616	11,593
1933	375,923	4,488	380,411	103,709	26,522	—	2,466	22,089	14,274
1934	408,886	8,026	416,912	114,965	24,889	—	2,678	25,039	13,353
1935	465,021	5,463	470,484	127,622	64,257	—	3,858	32,470	17,871
1936	478,026	6,946	484,972	118,896	112,400	2,622	4,794	39,636	17,419
1937	570,788	19,543	590,331	148,157	39,732	3,284	7,722	44,340	17,157
1938	479,813	9,714	489,527	90,295	41,894	3,969	6,043	29,781	18,847
1939	548,876	12,461	561,337	105,596	52,159	17,172	11,844	42,570	28,220
1940	575,524	14,616	590,140	66,937	19,415	14,510	24,857	45,967	37,164
1941	784,481	31,834	816,315	68,515	8,575	26,785	46,295	55,514	49,515
1942	775,748	55,831	831,579	10,636	3,712	9,172	52,432	26,113	25,928
1943	698,231	75,253	773,484	8,228	1,990	1,658	16,913	26,754	20,783
1944	650,000	75,000	725,000	10,000	400	15,000	80,000	—	14,616*

Use of linseed oil in the drying oil industries represents total apparent disappearance minus use in "other products" reported by Bureau of the Census. Apparent disappearance of linseed, tung, perilla, and oiticica oils computed from data on production, trade and stocks, from reports of the U. S. Department of Commerce, and U. S. Department of Agriculture.
1/Utilization in paint, varnish, linoleum, oilcloth and printing inks, Bureau of the Census. In recent years, this has consisted of dehydrated castor oil, but small quantities of No. 1 and No. 3 castor oil also are used. *9 months. From:—The Fats and Oils Situation. FOS-93. November 1944.

Soybean oil is at the foot of the class and fluctuates about one-half cent to one cent per pound lower than cottonseed oil.

This average lower price is due to soybean oil being a substitute oil for cottonseed, peanut and corn oil in the edible field, requiring additional processing to make it usable. Similarly in the drying oil field, it is classed as a semi-drying oil and, therefore, sells at a discount to linseed oil.

This "substitute" character will continue until research work eliminates the flavor stability problem in the edible field or until the separation of the oil into fractions makes it more valuable for edible and drying oil uses.

In conclusion, what then is the outlook for increased soybean oil usage in the postwar period? Some recent observations on this subject have been quite optimistic (14) (15) (16) and others have indicated that in the drying oil field, for example, an abundance of various oils will be available. Unless the price structure of these oils is controlled, the price level will drop and certainly soon reflect the real merit of these oils.

Reference to the diagrams above, and to Table No. 5 shows that soybean oil has not been a vital factor in the drying industry in the past. In 1941, its steady slow growth reached a usage just short of 50 million pounds a year, about 5 percent of the total oil usage in the drying oil industry. During the past three years due to restrictions, this annual usage has dropped to somewhat less than half this quantity. It should be possible to recapture this lost ground and perhaps extend it, but the competition will be severe, particularly from such new products of research as dehydrated castor oil which will challenge the recognized advantage of soybean oil alkyds as a non-yellowing interior finish.

In the edible field, the postwar competition of other oils will be also intense, but the picture for domestic soybean oil appears fairly bright. It is unlikely that the cotton crop will be increased, hence the available cottonseed oil will remain near its present level. Similarly, the supply of peanut oil from domestic sources is not likely to expand under less controlled postwar conditions. It follows, then, that large supplies of other oils will be needed to furnish the oil for a 2.2 to 2.6 billion pound vegetable edible oils market. We know that soybean oil has had public acceptance in all types of edible products of good quality in these war years. This factor favors continued usage.

There are no other domestic oils available in large volume and competition will come mostly from coconut and similar oils for usage in margarine and salad-cooking oils. For margarine there is considerable legislative advantage in using oils from domestic farms to compete with butterfat from the same and other domestic farms.

The war has given soybean oil an enviable opportunity in the edible fats and oils industry. It is up to the industry to continue actively an enlightened program to improve the quality of crude soybean oil by all methods, —agronomic improvement of varieties, improved growing and harvesting, cleaning and storing of beans, improved oil processing with rewards for superior quality, continued research to improve its flavor stability, and continued development of fractionated soybean oil.

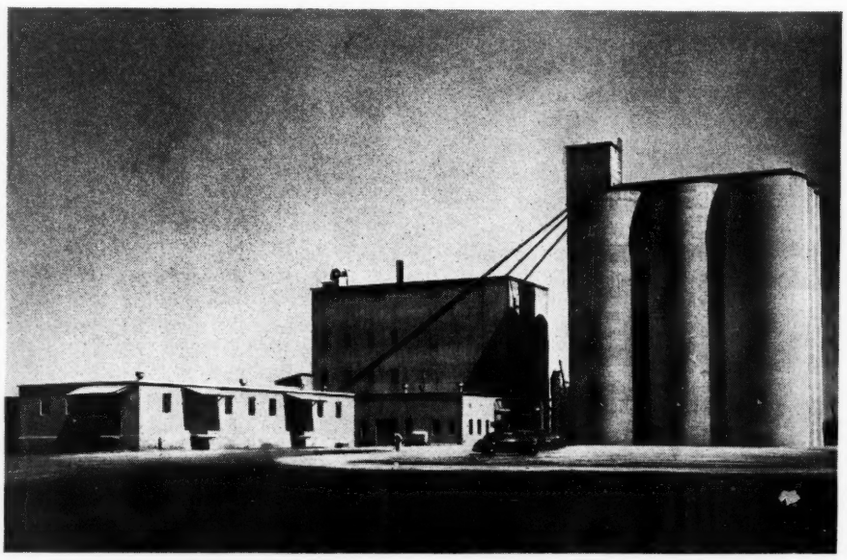
(1) U. S. Patent 2,164,291. Hydrogenated Oil Products. L. G. Jenness.
(2) U. S. Patent 2,353,229. Hydrogenation of Oil. M. M. Durkee.
(3) Predicting the Flavor Stability of Soybean Oil. Oil & Soap. Dec. 1944. J. H. Sanders.
(4) Oil Quality from Hydraulic Pressed Soybeans. R. P. Hutchins. Oil & Soap. About May 1945.
(5) Fractional Distillation. Mar. 1941. D. M. Flick. Seventh Annual Chem. Conf.
(6) U. S. Pat. 2,200,390. S. E. Freeman. May 14, 1940. Also subsequent patents. Assignee—Pittsburg Plate Glass Co.
(7) Solvent Extraction of Vegetable Drying Oils. R. F. Ruthruff and D. F. Wilcock—American Institute of Chem. Eng. Aug. 1941.
(8) Modification of Vegetable Oils. A. E. Bailey, et al. July 1943. Oil & Soap.
(9) Low Temp. Sol Crystallization of Soybean Oil and Soybean Fatty Acids. W. C. Beall and D. H. Wheeler. July 1943. Oil & Soap.
(10) U. S. Patent 2,320,738. J. D. Jenkins.
(11) U. S. Patent 2,357,881. B. A. Dombrow.
(12) U. S. Patent 2,360,860. R. C. Morris.
(13) Fractionation by Sol. Extr. Ind. Eng. Chem. June 1943. A. W. Kleinsmith and H. R. Kraybill.
(14) Synthetic drying Oils. American Ink Maker. Mar. 1943. A. G. H. Reimold.
(15) Postwar Prospects of Drying Oils. Chemical Industries. Dec. 1944. Otto and Gerald Eisenschiml.
(16) Repaint America with Soybean Oil. Soybean Digest. Jan. 1945. J. J. Kessler.

PURINA OPENS NEW PLANT AT KANSAS CITY

A new soybean processing plant with four super-expellers having an annual capacity of 1,000,000 bushels opened June 1 in Kansas City, Mo., as the fifth soybean plant of Purina Mills. Located at the company's mill at Scott and Rochester in the North Bottoms section of Kansas City, the plant will handle both carload and truck shipments.

John C. Skaggs, manager of Purina's Kansas City operations, William H. Kamp, superintendent, and Hartzell S. Banks, supervisor of soybean operations, are in charge of the new plant which is the fifth soybean unit for Purina. Others are located at Lafayette, Ind.; St. Louis, Mo.; Circleville, Ohio, and Iowa Falls, Iowa.

Production of approximately 25,000 tons of soybean meal for livestock and poultry needs will be processed through the new plant, and facilities have been provided for doubling the capacity whenever soybean production in the area justifies. To stimulate soybean acreage, approximately 15,000 bushels of adapted high-yielding seed varieties have been distributed by Purina through county agents and other agricultural agencies to farmers in western Missouri and northeast Kansas.



Honeymead Products Co. Opens New Plant at Washington, Iowa

The Washington, Iowa, soybean processing and feed mixing plant of Honeymead Products Co., has been in capacity operation for about four months. The latest advance in the solvent extraction method is used in the processing plant, which is practically identical in design to the Honeymead plant at Spencer, Iowa, in operation since 1944. Capacity of each plant is approximately 2,000 bushels a day.

The feed plant has a capacity of 50 tons daily and is designed for making a full line of Honeymead cattle, hog and poultry feeds.

Hugo Lensch, formerly purchasing agent for the firm's Cedar Rapids plant, is general manager of Washington operations.

A.S.A. Supports Bill to Define Soya Butter

The board of directors of the American Soybean Association has gone on record in support of a bill in Congress to define soya butter as being distinct from margarine.

The bill would lift soya butter, an all vegetable product made from soy oil and other soybean derivatives with added carrot oil to give it a bright yellow color, out of an amazing tangle of federal and state rulings that have hampered or prevented its sale altogether.

Manufactured by Butler Food Products of Cedar Lake, Mich., soya butter is being sold in that state under a restraining order pending the outcome of a suit by Bureau of Internal Revenue to collect the 10 cents a pound federal tax levied on colored margarine. The manufacturer also has obtained a court order preventing enforcement of the state's margarine laws against soya butter.

WHY THEY CAN'T BUY IT

Meanwhile, in the neighboring state of Ohio fat-starved people are prevented from buying this low point spread because:

1. The U. S. Food and Drug Administration has ruled that soya butter is not margarine and to so label it would be misbranding, subject to penalties.

2. The Bureau of Internal Revenue, however, has ruled that soya butter is margarine, and that handlers must pay the usual license fees and collect a tax from their customers.

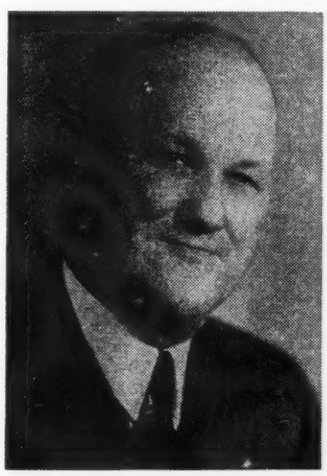
3. When W. G. Barnard, operator of Natural Foods Institute, vegetarian store of Cleveland and chief Ohio outlet for the product, sought an injunction against imposition of the federal margarine tax, Judge Robert N. Wilkin ruled that soya butter was not margarine but that the tax should be paid under protest pending final disposition of the case.

Since no practical means existed of refunding the tax to the customers, who had been buying 5,000 pints a week, Barnard called a mass meeting of Cleveland citizens to demand a "fifth freedom—to eat what we want." Five thousand signed a petition for remedial legislation on the same day that the Ohio legislature was defeating a bill to legalize the sale of colored margarine.

4. The Ohio Department of Agriculture announced that, in variance with Judge Wilkins' ruling, a decision had been reached to classify soya butter as colored margarine, which cannot be sold in Ohio.

In the midst of this comedy of contradictions agents of the Internal Revenue Bureau arrived at Natural Foods Institute to destroy the Institute's stock of soya butter which was under the Bureau's seal. When Barnard, who had vainly sought permission to donate the stock to a hospital or other public agency, threatened to call in photographers and spread pictures of the act of destruction over the front pages of Cleveland's newspapers for the city's fat-hungry people to see the next day, the agents fled.

W. G. BARNARD — calls for fifth freedom, "to eat what we want."



MEAT

NO POINTS!

MADE FROM THE SOY BEAN

Served in Cleveland's Leading Hotels and Restaurants

★ CHOPS
★ STEAKS
★ ROASTS
★ CUTLETS

lb. can ENOUGH FOR 4 Persons **35c**

Cleveland's Largest Health Food Store

Natural Foods Institute

624 Prospect Avenue Opp. Taylor Arcade

This is copy of the advertisement Barnard published in Cleveland's newspapers. When the Better Business Bureau objected to the term "meat" in describing soya products, he quoted first the dictionary, then the Bible.

In Minnesota, the Commissioner of Agriculture has obtained a conviction against a store selling soya butter of a violation of that state's margarine laws.

The bill which the directors of the American Soybean Association has endorsed would make it clear that federal laws and regulations applying to margarine do not apply to soya butter. The support of the Association is subject to the qualification that the product be made from domestically produced soybeans.

WHAT IS MEAT?

Incidentally, the Natural Foods Institute has tangled with the Cleveland Better Business Bureau over describing its soya chops, steaks, roasts and cutlets as "meat" in newspaper advertising. When the Bureau objected to the term in describing soya products, Barnard quoted the dictionary to the effect that meat is "anything eaten as food, edible portion of fruits, nuts, eggs, etc.; flesh of animals used as food, etc." Then to clinch the matter he quoted Genesis. God created the herb bearing grains, grasses and trees and said "the fruit thereof shall be the meat of man."

FIRE!

is an ever present danger in a soy mill. Appraisal Service provides a basis for proper insurance coverage, and has never been successfully disputed in case of fire loss.

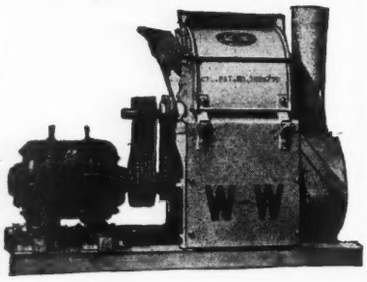
Appraisal Service Company

INCORPORATED

Minneapolis Minnesota

APPRAISERS TO THE MILLING AND GRAIN TRADE

THE INSIDE DOES THE WORK



When you buy a grinder, do not just look at the outside. Look at the inside. This is the part that does the work. W-W Grinders are made to give continuous service at the very minimum of cost.

W-W GRINDERS

have many exclusive features

consume less horsepower per ton of grinding. Oily products are easily ground. Big feed openings enable W-W to handle enormous quantities. The fastest grinder obtainable for coarse grinding.

Write your own guarantee. We will sign it for a 30-day trial, if it meets with our approval. Our 12-page catalog gives details. Study it thoroughly.

Feed openings 12" to 36" wide.
Prices $90.00 to $1092.00.

W-W. Grinder Corp.

DEPT. SB **WICHITA, KANSAS**

SOYS AND THE U.S.D.A. . . .

Soft Pork . . .

ELLIS FOUND ITS CAUSE

N. R. ELLIS

Early in the present World War when a shortage of high protein feeds of animal origin became imminent, N. R. Ellis, in charge of animal nutrition research for the Bureau of Animal Industry, U. S. Department of Agriculture, pointed out that vegetable proteins, particularly soybean meal, could be used in livestock feeding in somewhat larger proportions than had been customary. Hogs, especially, he showed could utilize soybean products to advantage and make reasonably rapid and efficient gains. This was especially true in the case of animals above 75 pounds in weight. The results were quite similar to those obtained when fattening pigs received high levels of protein feeds of animal origin.

A special Department publication entitled "Wartime Swine Feeding" carried his recommendations, largely in the form of specific formulas which were based on recent feeding experiments. These covered a wide range of conditions and stages of animal development. Some formulas were designed for swine fed in dry lots without access to pasture; others were for supplements suitable for pasture-fed animals. There were recommended diets for brood sows, for young growing pigs, and for older pigs. The percentage of soybean meal varied with other ingredients but for the most part ranged between 25 and 60 percent of the total protein feed. Text accompanying the tables dealt with the selection of diets, feeding methods, and other details.

Besides the high protein value of soybeans, their widespread adaptability to soil and climatic conditions has contributed materially to their extensive use in the feeding of livestock.

Another case, also involving soybeans, in which Ellis served the livestock industry well in a technical capacity, occurred some 20 years ago. At that time swine growers, especially in the South, were being penalized from 10 to 25 percent, in market price, for their hogs because of so-called "soft pork." The Department of Agriculture and a number of State experiment stations were deeply interested in the problem and Ellis was one of the group of Department specialists engaged in its study. The soft or oily condition of many hog carcasses was traced to certain feeds. The scientists showed also how pork of acceptable firmness could be produced, even when feeds rich in oil, such as peanuts and soybeans, constituted a substantial part of the diet. The results were made available to farmers, stockmen, and others interested, through publications having wide distribution. In the past 25 years Ellis has been engaged in numerous other investigations in the animal nutrition field, designed to bring about improvements in the feeding of farm animals. For the past four years he has headed this work for the Bureau of Animal Industry.

Ellis was born on a farm in southwestern Wisconsin, attended the University of Wisconsin, and graduated from that institution in 1918. After two additional years of post-graduate study, largely in chemistry and biology, he entered the U. S. Department of Agriculture in July, 1920, and has been engaged since then in the kind of work described. He is the author of numerous official publications and a frequent contributor to scientific and agricultural journals.

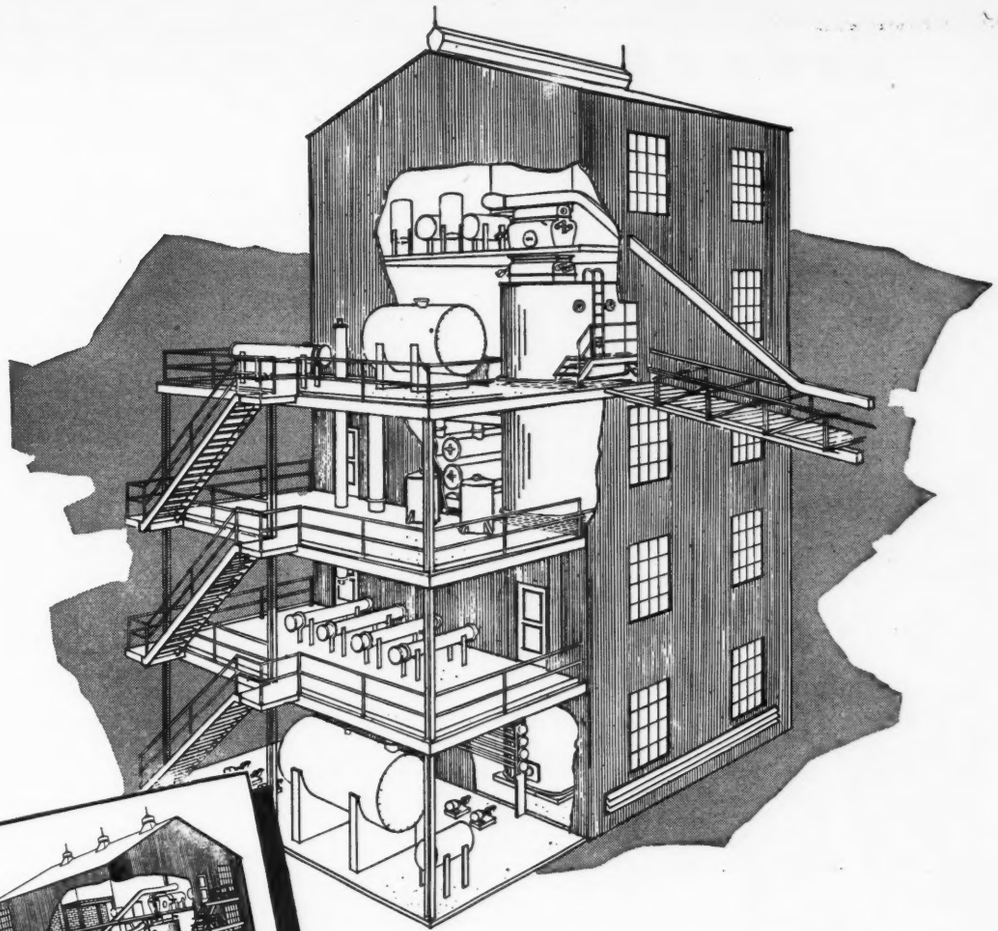
WE are equipped to grind and corrugate mill rolls up to 19 inches in diameter by 60 inches long. After July 1 we will be equipped to grind rolls 36 inches in diameter by 200 inches long, overall. Mirror finish for fine grinding, velvet finish for capacity.

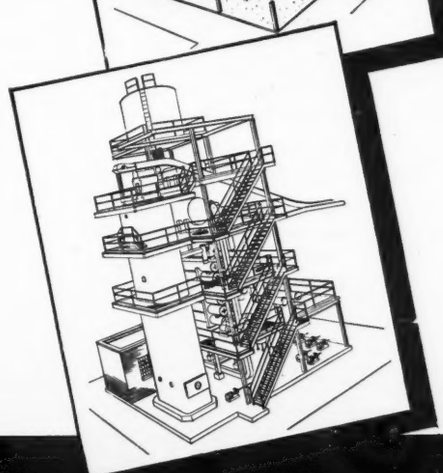
Your patronage solicited.

Prices on request.

Mc. Grinding & Corrugating Works

E. G. McCLINTIC, Owner
2827-29-31 Terrace St., Kansas City 8, Mo.





WHERE SOYBEANS REALLY "GIVE"

Solvent extraction of vegetable oils and meal processing by improved Blaw-Knox methods offers the industry a way to better products and increased profits.

Your inquiry will receive prompt and careful attention.

BLAW-KNOX DIVISION

OF BLAW-KNOX COMPANY, 2030 FARMERS BANK BUILDING, Pittsburgh, Penna.

★ GROWERS ★

Increase of Rowed Beans

Soybean growers in Illinois have about doubled the percentage of beans planted in rows since 1940, and acre yields have varied from three to five bushels more for the row-planted beans than for the drilled seed, reports J. C. Hackleman, professor of crops extension at the University of Illinois College of Agriculture.

Studies of the 1940 soybean crop showed that 25.8 percent of the beans in the state were planted in rows. Of the 1944 crop, 54 percent were row-planted.

Comparative yields reported by farmer cooperators on the 1940 crop showed an average yield of 20 bushels an acre for the state as a whole for the row-planted beans, while the drilled beans produced 17.1 bushels an acre, or a difference of three bushels in favor of the rowed beans. Comparative yields on the 1944 crop have not been determined.

HACKLEMAN

At the Urbana station experiments have been carried out over a six-year period with four different seeding rates when the beans were planted in rows, and five different rates of seeding when they were drilled. The combined average yield for all row-planted beans was 31.9 bushels an acre compared with 27.1 bushels an acre for the drilled beans, or a difference of 4.8 bushels in favor of row planting.

Highest yields from the row-planted experiment came from a rate of seeding of 50 to 60 pounds an acre compared with the highest yields from the drilled planting at a seeding rate of 90 to 120 pounds an acre. The difference between the best of the row planting and the best of the drill planting was 4.7 bushels in favor of the row planting.

In the Illinois 10-acre soybean contest which has been running now for four years, no grower with solid-seeded beans has approached the top in yields. In each of the four years the winner has grown his beans in rows.

Hackleman pointed out the possibility of controlling weeds as one of the advantages of row planting. With almost universal use of the combine in bean harvesting, farmers have learned the necessity of controlling weeds. Otherwise, he said, some fields become so thoroughly infested with weeds that it is necessary either to practice row seeding and control weeds or to quit soybeans. Row planting makes cultivation possible, which keeps most weeds in the bean field under control.

It was also emphasized that by row planting up and down slopes the danger of erosion will be increased. Therefore, where soybeans are being grown on rolling land or on gently undulating soils where erosion is a problem, this difficulty can be minimized by planting the beans in rows which are run on the contour.

About one-half as much seed is needed for planting in rows as for drilling. This fact has not been overlooked in the trends of recent years to plant soybeans in rows, according to Hackleman. He further stated that farmers have discovered that in growing beans for seed production purposes a finer quality of bean is obtained when the beans are planted in rows.

In addition, he emphasized that should a year of drouth occur, the row-planted beans, with fewer plants to the acre, will be able to withstand the conditions better than an extremely heavy seeding such as would be experienced in drilling 2 to 2½ bushels of beans an acre.

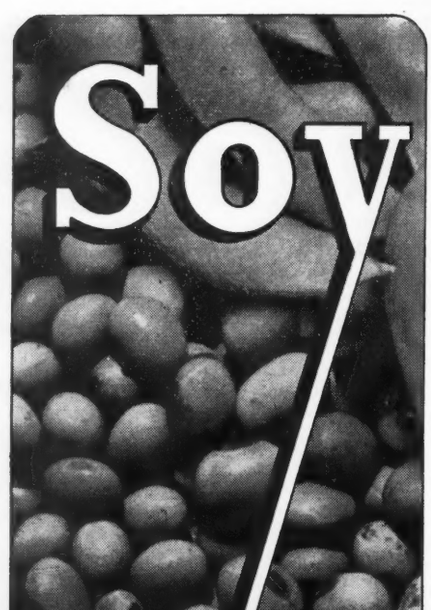
As Weed Killers

Many farmers have found that soybeans are one of the best smother crops to use in killing noxious perennial weeds such as quack grass, Canada thistle or bindweed.

E. P. Sylwester, Iowa State College plant pathologist, reports that the use of soybeans along with a program of plowing and cultivation not only will destroy the weeds but will bring the land back up to good production standards. Plans should be made to follow the program more than one year, with these general steps recommended.

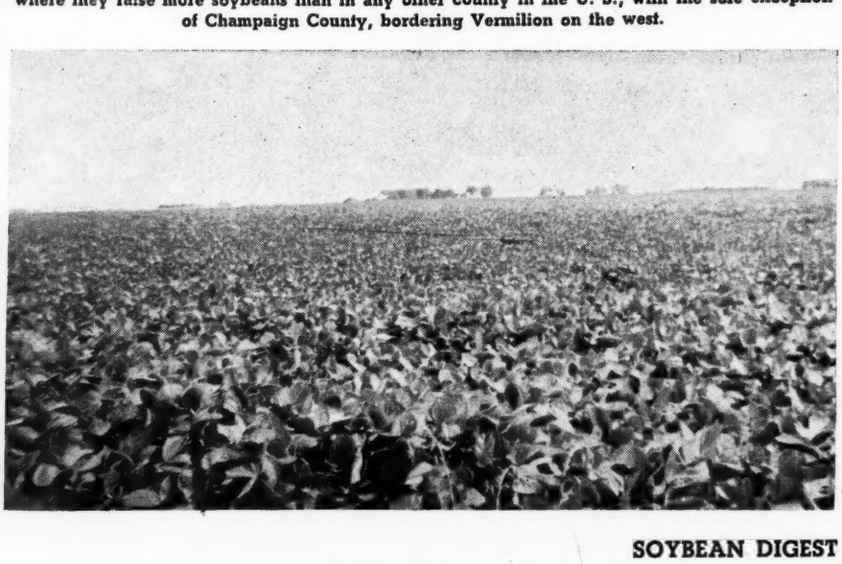
1. The infested area should be plowed in the spring as soon as weed growth starts.

2. A spring tooth harrow or surface cultivator should be used on the ground at 10-



One Hundred and Forty-Six Acres

This big field of soybeans, 146 acres, is on the farm of Richard E. Holt in Vermilion County, Ill., where they raise more soybeans than in any other county in the U. S., with the sole exception of Champaign County, bordering Vermilion on the west.



day intervals or whenever new weed growth appears.

3. Plow the ground again about May 30.

4. Prepare a firm seedbed and drill inoculated soybeans the same day at the rate of three bushels per acre.

5. Harvest the beans when ripe. Plow immediately and resume fallow operations.

6. Repeat the process every year until the weeds are eradicated.

On rolling ground the beans should be planted on the contour. It is often a good plan to seed rye in October after the beans have been harvested. The rye can be plowed under in the spring and soybeans planted again.

Results with Fertilizers The remarkable ability of soybeans to produce a fair crop on land of moderate or even low fertility gives the impression that the crop is an "easy keeper" and does not need much fertilizing nutrients.

However, L. B. Miller, assistant chief in soil experiment fields, University of Illinois College of Agriculture, points to chemical analyses to disprove this general belief. He reports that a 30-bushel crop of soybeans removes almost as much phosphorus, twice as much potash and five times as much lime as an 80-bushel corn crop. Facts like these, he says, show how soybeans draw upon the mineral supply in the soil.

Experiments have indicated the soybean response to fertilization. Miller points out that as far as phosphate is concerned there have been few significant responses except on soils which were extremely deficient in this nutrient. On soils which are moderately deficient in potassium, the use of muriate of potash, or of a mixed fertilizer rich in potassium, has given fairly good results. The material may be either broadcast or drilled at planting time, but direct contact with the seed beans should be avoided.

If soil tests show a deficiency of the plant nutrients, Miller says that studies show it is good business to apply enough fertilizer at one time to take care of the needs of all crops in the rotation.

—s b d—

NEBRASKA HOLDS 1945 CONTEST

A Nebraska Soybean Yield Contest will be held again in 1945, J. C. Swinbank, secretary of the Nebraska Grain Improvement Association, announces. The decision was reached after a canvass of county agents in the principal soybean counties of the state revealed all but two were strongly in favor of a continuation of the contest this year.

The Nebraska Grain Improvement Association, the Nebraska Agricultural Extension Service, the Omaha Chamber of Commerce, and the Fremont Chamber of Commerce will be co-sponsors of the event. Several soybean processors have also indicated their willingness to supply contest awards. Plans call for a finish-up meeting and banquet for all contestants at Fremont this fall.

The purpose of the contest is to encourage the most efficient methods of soybean production and bring information concerning these methods before Nebraska soybean growers.

Ten state prizes are offered, ranging from a $50 War Bond for the first prize to $10 in War Savings Stamps for the tenth award. Engraved medals will also be given to the two contestants having the highest yields in each county represented in the contest. A state committee has been set up to formulate the rules of the contest and serve as judges for the awards. Members of the committee are: J. C. Swinbank, secretary, Nebraska Grain Improvement Association; D. L. Gross, extension agronomist, Nebraska College of Agriculture; P. H. Stewart, grain improvement committee, Omaha Chamber of Commerce; Walter H. White, agricultural commissioner, Omaha Chamber of Commerce; and Merl C. Townsend, agricultural committee, Fremont Chamber of Commerce.

According to Swinbank the contest will be conducted much like the one in 1944. Entries are to be filed with and approved by County Agricultural Agents not later than July 15th. Contest fields must be at least 5 acres in size and if beans are grown on a field having a slope of 2 percent or more, it must be contoured. Land having more than 5 percent slope will not be eligible for the contest. Announcements of the contest and official entry blanks are now being distributed to county agents who can supply further information to growers who are interested in participating.

Keeping Up With Commodity Regulations

IT takes a specialist with thorough-going knowledge of commodity markets, *and* the various Washington agencies whose programs so greatly affect those markets, to keep up with current fast-changing developments.

We have a resident Washington representative who can and does give our clients a quick report on new rulings *when they occur,* and integrates the reports with keenly alert brief studies and interpretations of how commodity markets are being affected.

These on-the-spot, up-to-the-minute surveys are available to you. With rapidly changing national commodity trends so important at this moment, we suggest you ask our Commodity Department *now* to place its facilities at your service.

MERRILL LYNCH, PIERCE, FENNER & BEANE

Brokers in Commodities and Securities
Underwriters and Distributors of Investment Securities

70 PINE STREET NEW YORK 5, N. Y.

Offices in 87 Cities

Late Spring Further Boosts Soybean Acreage

Once again the national soybean acreage may stand to gain from a late, wet spring with poor early planting conditions that was widespread in soybean growing states. A similar condition boosted soybean acreage in 1944, when land earlier intended for corn, cotton or other crops, was planted to beans.

The U. S. Crop Reporting Board in its June report predicts that due to planting delays in eastern Kansas, Missouri, Arkansas and eastern Nebraska, shifts to later crops such as soybeans and sorghum will occur. Elsewhere in the Cornbelt some shifts from corn to soybeans may occur but more than likely farmers will first turn to quick maturing hybrid corn, says the report.

Soybean Digest reporters indicate that the trend to more row planting continues. Growers are adopting the newer varieties such as Lincoln, Earlyana and Chief. From all evidence, Lincoln planting will be especially widespread as soon as sufficient seed is available.

Most states report sufficient to excessive moisture. The chance of obtaining a national yield equal to that of the past several years depends on a favorable season from now on.

Reports as of June 1 from *Soybean Digest* correspondents follow:

CONNECTICUT

J. S. Owens, professor of agronomy, University of Connecticut: Planting delayed two weeks. Practically none planted. Weather exceptionally wet during May. Soybeans grown for forage. Seedings to hay crops were below normal in 1944 on account of labor shortage and dry weather. Increased plantings of soy beans will be made to increase forage supplies for coming winter.

ILLINOIS

J. E. Johnson, Champaign, for Champaign and adjoining counties: Planting date slightly later than normal, but not as late as 1943 and 1944. 10% planted. Little change from 1944 acreage. Weather conditions cool and needing rain for quick seed germination. General soil conditions not as favorable as 1944. Many fields must have rain before there will be complete germination. More Lincolns being planted since all 1944 increase used for seed. I maintain there is a possibility of overselling this variety as with other good or new varieties. A small percentage of farmers are using the suggestion made by Dr. Allington of planting more than one variety where they have a large acreage. A small percent fit the variety to their soil conditions as to fertility and other factors. A heavy demand for the Chief soybean that made an outstanding record the past year in this section. Is one of the best for low fertility soils and for wide rows. Early and medium early varieties making noticeable gains. Keen demand for seed due to farmers selling heavily last fall. Reports of six-year results at the Illinois Agricultural Experiment Station showing a 5-bu. increase in favor of rowed soybeans, and the 10-acre yield contest showing about 4½ bu. in favor of rowed beans does not cause many farmers to help themselves to around $10 per acre by changing from an old time custom.

A. E. Staley Mfg. Co., Decatur, for central: Planting date 1 to 2 weeks late, 30-35% planted. Acreage somewhat above 1944 and higher than goal. Field work started in central Illinois from May 21 to May 23 and progressed rapidly until May 31 when stopped by rain. No noticeable difference in varieties except more Lincolns where seed is available.

Walter W. McLaughlin, Decatur, for Decatur and vicinity: Big increase in Lincoln where seed available. Beans should get away to good start if weather favorable from now on. Heavy beating rain June 2 may make it necessary to replant some fields planted just before rain.

INDIANA

Ersel Walley, Walley Agricultural Service, Ft. Wayne, for northeastern Indiana and northwestern Ohio: Planting date earlier than normal. 75% planted. Acreage about same as 1944. Weather too cool but rain not excessive. Soil conditions very good. Crop going in in better shape than for several years. Trend to Lincolns limited by available seed supply.

K. E. Beeson, extension agronomist, Lafayette: Very little corn or soybeans could be planted in Indiana before May 20. Since that time conditions reasonably favorable although soil not warm enough for rapid germination. Acreage probably will not be quite as large as last year although delay in corn planting may cause some acreage to go to soybeans in June that might have been planted to corn.

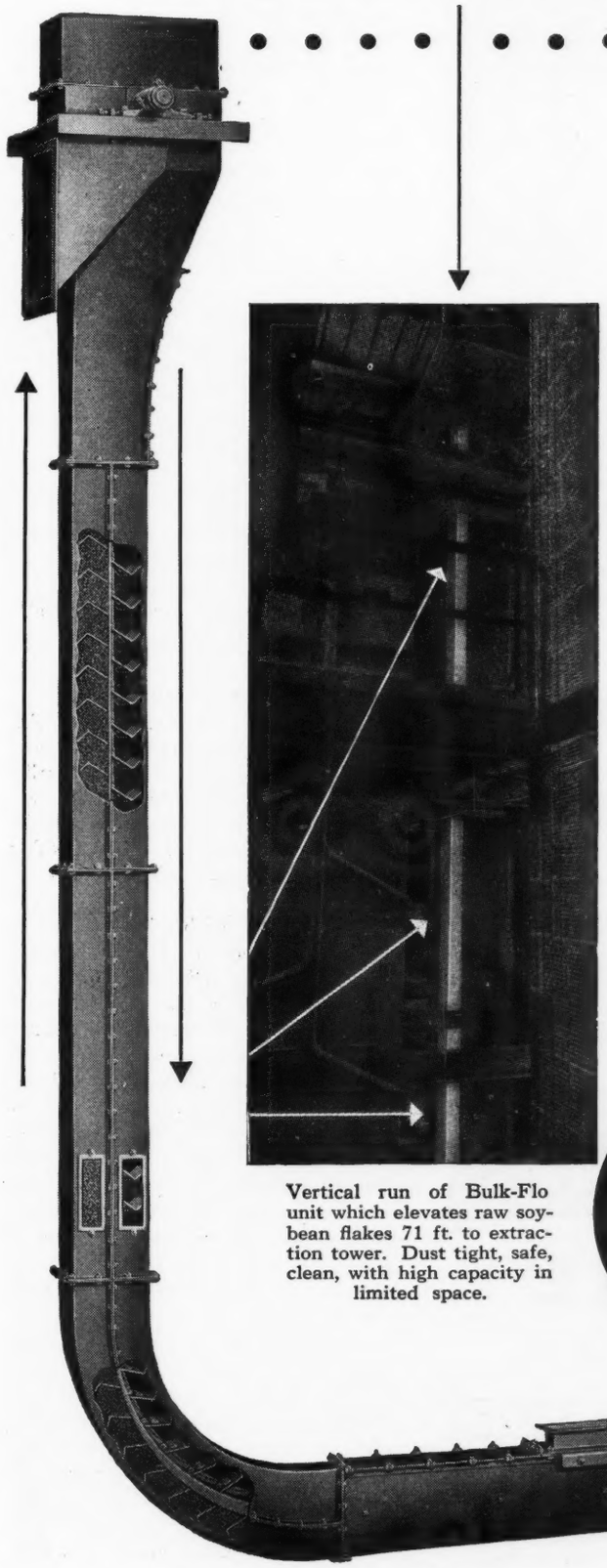
Peter J. Lux, Indiana Agricultural Conservation Committee, Indianapolis: Planting date week to 10 days late. About two-thirds planted. Indicated acreage much the same as 1944. Since season later than normal, soybean acreage may still replace late corn in some areas. General indications in most counties are that 1945 planted acreage will equal or exceed 1944 acreage. Last 10 days of May excellent for field work in practically entire state. Lincolns being used in place of Richland and other older varieties wherever seed available. Otherwise not much change in varieties.

J. B. Edmondson, Clayton, for south central: Goal fully met here. Acreage approximately as in 1944. Some switch from tomatoes to beans. Ideal planting weather since May 24 becoming dry. Lighter seeding prompted by high seed costs and scarcity of Lincoln seed. 35-40 lbs. usual amounts. Row planting almost 100% for combining. Tendency to use planter width rows as for corn to save change of cultivating equipment. Markers set in 34-36 in. Germination appar-

You're money ahead when you install
KELLY-DUPLEX
EQUIPMENT
Here's how you benefit!
√GOOD ENGINEERING
√QUALITY CONSTRUCTION
√LOW FIRST COST
√STEPPED-UP CAPACITY
√MINIMUM POWER
√LONGER LIFE
√REDUCED REPAIR BILLS
√FEWER SHUTDOWNS
KELLY-DUPLEX
OFFERS COMPLETE SERVICE
If you plan on equipping your entire mill—or need a new Mixer, Hammermill, Burr Mill, or want to improve your Bucket Elevator or Conveying System—we can help you. The Kelly-Duplex Line is complete, comprising units that enable you to run on a systematized basis. Tell us your requirements and have us furnish quotations. Do you have our Catalog? Ask for your copy.
MODEL M HAMMERMILL
VERTICAL FEED MIXER
CORN SHELLER
ELECTRIC TRUCK HOIST
CORN CUTTER & GRADER
The Duplex Mill and Mfg. Co.
Springfield, Ohio

Move loose materials without contamination

with BULK-FLO ELEVATOR CONVEYOR FEEDER . . .



Vertical run of Bulk-Flo unit which elevates raw soybean flakes 71 ft. to extraction tower. Dust tight, safe, clean, with high capacity in limited space.

● The Bulk-Flo is an efficient, low-cost method of conveying free-flowing granular, crushed, ground, or pulverized material of a non-corrosive, non-abrasive nature. Bulk-Flo carries the materials in compartments, vertically, horizontally, around corners, on inclines, and in combinations.

Bulk-Flo is compact; requires little space; is economical to install, and to operate. It has inherent high capacity, the material occupying practically the full cross sectional area of the carrying duct. Bulk-Flo is self-feeding, self-discharging, and with recommended products self-clearing.

Because flights operate in a dust-tight casing, Bulk-Flo is highly successful where food products or chemicals must be handled without contamination or exposure. Because of its gentle handling, it reduces breakage, degradation, and dusting to a minimum.

Get complete details on Bulk-Flo; ask a Link-Belt Materials Handling Engineer for suggestions on this and other types of conveying equipment.

LINK-BELT COMPANY

Chicago 8, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities.

Features of Bulk-Flo Conveyors

Suitable for a wide range of capacities.

Operates at slow speed.

Eliminates annoying up-drafts.

Loads automatically, at one or several points, without feeders.

Automatically discharges at one or more points, on horizontal, inclined, or vertical run.

9917

LINK-BELT

Bulk-Flo

ELEVATOR-CONVEYOR-FEEDER

ently unusually good, with no weed problems to date.

IOWA

A. J. Loveland, state chairman AAA, Des Moines: Planting date north half state normal, south half 10 days late. 30% planted in north, 10% in south. Excessive moisture in southern portions of state, which is favorable to planting more beans. A shift to such varieties as Lincoln, Chief, Richland.

O. N. La Follette, executive secretary, Feed Institute of Iowa, Des Moines: Planting principally in June due to wet and backward weather. 10-40% planted over Iowa May 26. Total acreage will slightly exceed 2 million acres, subject to increase if wet weather further retards corn planting. I have talked to a lot of farmers over Iowa and a common expression is they will plant corn as long as it is reasonably safe but will turn to beans when the season gets too late for safe maturity of corn. They have just gone through an experience of poor corn maturity and appear to be playing safe in 1945, especially in view of an apparent sufficient supply of cereal grains. Many farmers who planted late corn last year will turn to beans this year. Strong demand for early maturing varieties due to anticipated late planting season.

KANSAS

E. A. Cleavinger, extension division Kansas State College, Manhattan: Planting date least bit late. 5% planted. Acreage will equal 1944 and if weather prevents corn planting further acreage of soybeans will exceed both 1944 and present goals. Wet cold spring early, but conditions now more favorable for soybeans. Most of acreage will be planted to Hongkong and Dunfield, also Chief, Illini and Patoka. Lincoln acreage limited because of lack of Lincoln seed supplies.

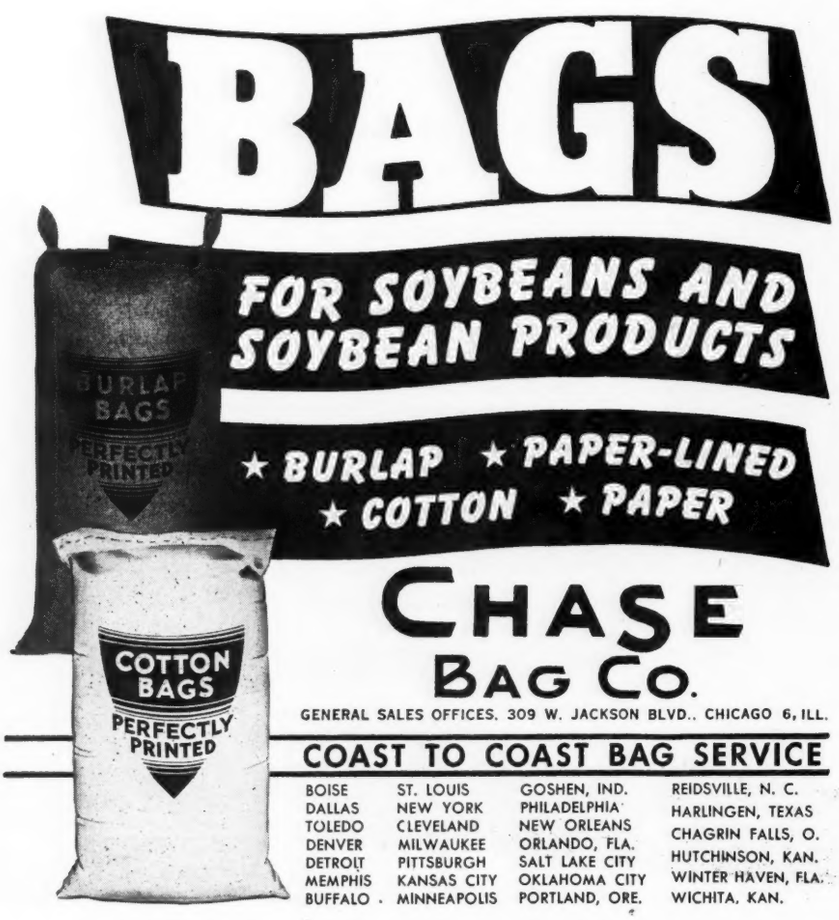
MINNESOTA

W. G. Green, Lakefield, for southwest: Planting date 10-15 days early. 90% planted. Acreage 25% above 1944. Very little change in varieties from last year.

John W. Evans, Montevideo, for southwest central: Planting date early. 40% planted June 1. 25% increase in acreage. Weather conditions excellent. Trend to earlier varieties.

MISSOURI

Cordell Tindall, field editor Missouri Ruralist, Fayette: Just recently I was in southeast Missouri, and the bean acreage there will be greatly increased this year because of the wet weather which delayed cotton planting. Much of the cotton and corn acreage will go to soybeans.



Harry A. Plattner, Malta Bend: Planting date late. Very small portion planted. Acreage increased 20% over 1944. Weather cold and rainy. Change in varieties to Lincolns and Chief, the former if available.

J. Ross Fleetwood, extension specialist, Columbia: Rain has prevented planting to date. Practically none planted. Increased acreage indicated. The percent will depend on weather. Rain has continued until oats acreage is low, corn and cotton not planted. Not over 25-50% of corn planted as of last week in May. This will doubtless mean increased acreage of soybeans. Even this acreage will be planted at least 10 days late. Increased acreage of Ralsoys, Chief and Boone.

MISSISSIPPI

R. B. Carr, Delta Experiment Station, Stoneville, for Yazoo-Mississippi Delta: Planting date 30-45 days late. One-fourth or less of crop planted. Weather conditions extremely unfavorable. Excessive rains. As result of adverse weather and labor shortage, planted acreage may run as low as 75 or even 50% of goals.

NEBRASKA

Marr Processing Co., Fremont, for east central: No beans planted June 5. Planting date 10 days to two weeks late. Acreage 40% over 1944. A large acreage of Richlands will be planted on ground intended for corn. Due to wet spring only 50% planted June 5.

NORTH CAROLINA

E. E. Hastings, N. C. State College, Raleigh, N. C.: Early beans planted at normal time. Second crop should be planted earlier than normal. Moisture conditions have been good since late April. May quite cool. Increase in acreage planted to Ogden with a corresponding decrease in Tokio and Woods Yellow.

OHIO

R. D. Lewis and D. F. Beard, department of agronomy, Ohio State University, Columbus: Planting date about normal. Greatest percent of crop usually planted in June. Smaller acreage than 1944. Weather conditions too wet in April and early May. Soil preparation delayed for corn and soybeans. In 1944 five varieties, Richland, Mingo, Manchu, Dunfield, and Mandell accounted for slightly over 80% of Ohio acreage. In 1945 Lincoln and possibly Earlyana will be among five or six leaders, and reductions will occur in Manchu, Dunfield, Mandell, and probably Mingo.

W. G. Weigle, Marsh Foundation Farms, Van Wert, for northwest: Planting date about one week late. 75% crop planted. Too cold and wet during middle May for farmers to work on ground. Van Wert County acreage will be about 5% less than 1944. Corn acreage up equal amount. About 7% acreage in Van Wert County will be planted to Lincolns. More

Indiana's Triple A answers to DIGEST questionaire. Questions asked referred to planting date, portion of crop planted, acreage, weather conditions and varieties.

Dunfields and Manchu and less Richland planted than last year. Seed situation was rather acute for a while, due to farmers selling all their beans from combine last fall.

G. G. McIlroy, Irwin, for west central: Normal planting date, 50% crop planted. Acreage 100% crop goal as far as I can observe. Weather conditions fine except too cool most of time. Acreage planted to Lincolns, Richlands and Earlyanas greatly increased. Also we note an increasing tendency to plant in rows 21-42 inches apart rather than solid with a wheat drill. Apparently everyone is completely sold on the good qualities of Lincoln.

VIRGINIA

State AAA, Blacksburg: Planting date normal. 20% planted. Acreage 110% of 1944 and 67% of 1945 goal. Weather conditions cooler than normal. Ample moisture.

Market Street

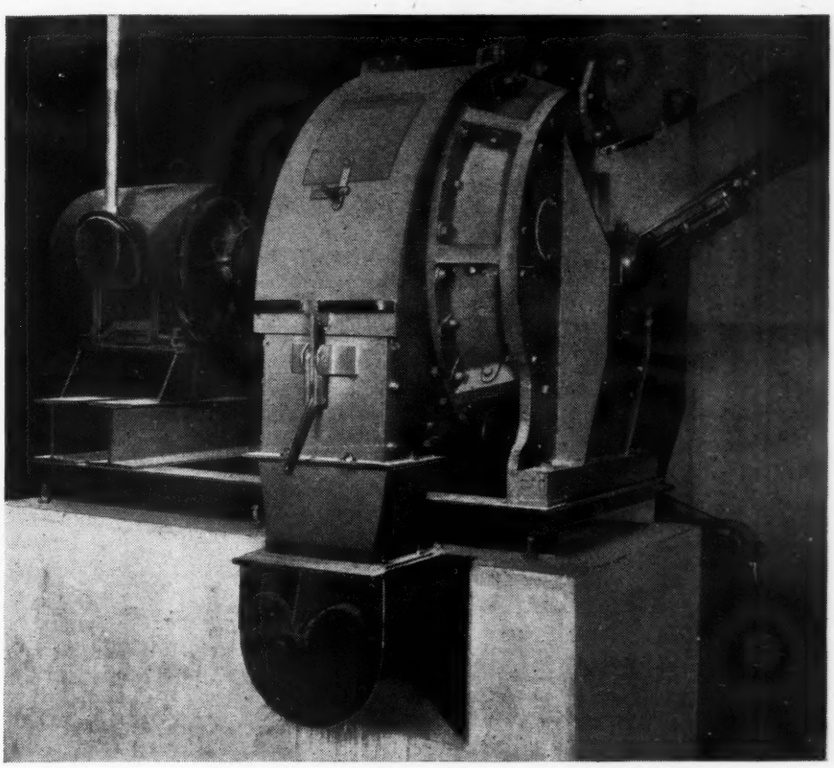
We invite the readers of THE SOYBEAN DIGEST to use "MARKET STREET" for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here.

Rate: 5c per word per issue. Minimum insertion $1.00.

SOY-GRASS COOKIES—Wheatless, sugarless, alkaline. The food sensation of the age and LAST WORD IN NUTRITION. 3 packages postpaid for $1.00. ViVi-Ta Healthful Foods, 480 E. Main, Rochester, N. Y.

FOR SALE — Used Steel Storage Tanks, 8,000, 10,000, 12,000, 18,000 gal. And other sizes. Stanhope, Wayne, Penna.

The Prater Dual Screen Pulverizer



Prater Dual Screen Pulverizer in plant of Soybean Processing Company — Division of the Borden Company

MEETING SPECIALIZED REDUCTION PROBLEMS

THIS INSTALLATION in the Soybean Processing Company Plant, division of the Borden Company, presented the unusual requirement of processing expeller cake material along with the re-grinding of a mixture of various materials in the feed department where vitamin-fortified supplements are produced.

Since the start of the Soybean Industry Prater Service has been used to handle such problems. This one was met and solved with a Prater Dual Screen Pulverizer and standard conveyor equipment with special attention being paid to the air relief requirements.

With a background of experience that covers the majority of soybean processing plants in operation today, Prater Service stands ready to assist you in any reduction problem in soybean processing. Address your inquiries to:

Industrial Division

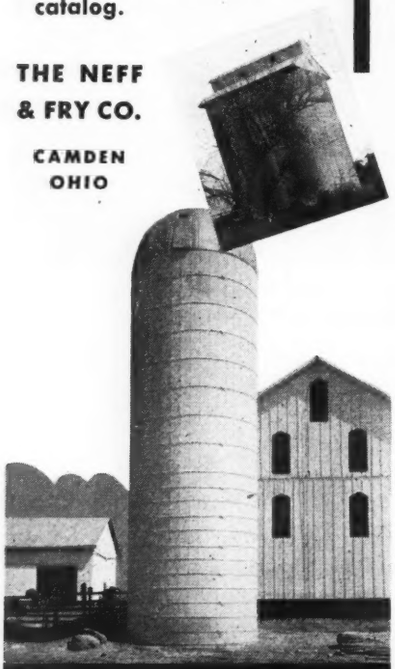
PRATER PULVERIZER COMPANY

1825 South 55th Avenue **Chicago 50, Illinois**

CUT COST CORNERS

Adequate storage plus fast, efficient handling of soybeans is the one sure way to cut costs and raise profit figures. Hundreds of N & F bins are being installed for that reason. Trained crews erect N & F bins in any size . . . stave or monolithic. Bins are guaranteed. Write for engineering service and catalog.

THE NEFF & FRY CO.
CAMDEN OHIO



N & F BINS

OIL CHEMISTS ELECT BY MAIL

An election by mail ballot, the first in the history of the Society, was held by the American Oil Chemists' Society this spring, and members of the governing board met in Memphis, Tenn., on May 10-12 to transact necessary business. New officers, as announced by the retiring president, K. S. Markley, of the Southern Regional Research laboratory, New Orleans, are as follows:

President: Robert R. King, technical director of the Interstate Cotton Oil Refining Company, Sherman, Tex.; first vice president: S. O. Sorensen, technical director of the Archer-Daniels-Midland company, Minneapolis; second vice president: Reid T. Milner, head of the analytical and physical chemical division of the Northern Regional Research laboratory, Peoria, Ill.; third vice president: Judson H. Sanders, head of the edible process development group of the Chemical division of Proctor and Gamble company, Cincinnati; fourth vice president: C. P. Long, head of the analytical methods section of the standards department, Chemical division, Proctor and Gamble, Cincinnati; secretary: H. L. Roschen, research chemist, Swift and Company, Chicago, and editor of *Oil & Soap*, journal of the A.O.C.S.; and treasurer: John P. Harris, manager, Chicago office, Industrial Chemical Sales division West Virginia Pulp and Paper Company.

Other members of the governing board for the coming year will be Dr. Markley; Lamar M. Kishlar of the Ralston Purina company, St. Louis; H. S. Mitchell, Swift and Company, Chicago; and W. G. McLeod, Oscar Mayer and Co., Madison, Wis.

Retiring members of the board are John R. Mays, Barrow-Agee laboratories, Memphis, Foster Dee Snell, head of the F. D. Snell laboratories, Brooklyn; J. C. P. Helm, head of the Helm laboratory, New Orleans, and for 20 years secretary-treasurer of the Society; and Dr. H. A. Schuette, University of Wisconsin, Madison.

Also in attendance at the Memphis meeting was Mrs. Lucy R. Hawkins, Chicago, who is acting executive secretary of the Society and associate editor of *Oil & Soap*.

M. E. Greiner was recently elected vice president in charge of sales of the Hammond Bag and Paper Co., Wellsburg, W. Va. Mr. Greiner is continuing to serve as assistant general manager.

—s b d—

HONEYMEAD SELLS TO CARGILL, INC.

Announcement has been made of the sale of Honeymead Products Co.'s Cedar Rapids plant to Cargill, Inc., of Minneapolis, Minn., effective June 1. An estimated purchase price was 2½ million dollars.

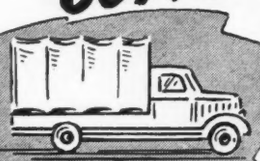
Honeymead will continue in business, keeping its main office in Cedar Rapids and continuing to operate its feed and soybean processing plants at Spencer and Washington, Iowa.

O. D. Andreas has resigned as vice president of Honeymead, and will become general manager of Cedar Rapids operations for Cargill.

It is estimated that the acquisition of Honeymead's plant will boost Cargill's Iowa business to more than 10 million dollars annually.

The plant has a daily soybean processing capacity of 4,300 bushels, manufactures 200 tons of feed daily and has a bulk grain storage capacity of 700,000 bushels.

Used COTTON & BURLAP Bags



WATERPROOF TARPAULINS IN ALL SIZES FOR TRUCK COVERS

IN THE BAG BUSINESS FOR MORE THAN 32 YEARS

MAX KATZ BAG CO.
INDIANAPOLIS, IND.

DO YOU NEED CAPITAL ?

To Finance Your Inventories Of Soybeans, Oil and Meal

Our Field Warehousing Service enables you to obtain Banking accommodations readily, and on most favorable terms.

St. Paul Terminal Warehouse Receipts, issued against inventories of Soybeans, Oil and Meal, stored on your own premises or elsewhere, are preferred collateral for Bank Loans.

With Warehouse Receipts as collateral, your Banker is permitted to grant a larger line of credit than would be possible otherwise, invariably at interest rates that will save you money.

GET THE FACTS from our nearest office about our Field Warehousing Service covering Soybeans, Oil and Meal. The cost is nominal compared with the important advantages the service affords you. Your inquiry will be treated in strictest confidence, and will receive prompt, courteous attention.

St. Paul Terminal Warehouse Co.

St. Paul, Minn.

DES MOINES
515 Iowa-Des Moines Nat'l Bank Building

CHICAGO
120 South La Salle Street

MILWAUKEE
601 First Wisconsin Nat'l Bank Building

INDIANAPOLIS
809 Electric Building

DETROIT
2005 National Bank Bldg.

Other Offices at

NEW YORK • BOSTON • PHILADELPHIA • PITTSBURGH • SYRACUSE • ATLANTA MEMPHIS • CHARLOTTE • ALBANY, GA.

GRITS and FLAKES...

FROM THE WORLD OF SOY

"Along the Line in Illinois" is another book by the Nickel Plate Road in the interesting series being published about the states through which its lines extend. Like the others, the Illinois booklet is a community by community account of the agriculture, industries, local lore and history of the region through which the railroad passes. Among other maps is one showing soybean, corn and oat acreage by counties in Nickel Plate territory, grain elevators along the line and soybean processing plants in the state.

* * * *

Madison Health Messenger, published by Madison Foods at Madison College, Tenn., published in a recent issue a facsimile of the front cover of our Silver Jubilee Issue together with a handsome writeup of the 25th annual meeting of the American Soybean Association at Urbana, Ill., last fall.

* * * *

In trials using cracked soybeans as the protein concentrate in comparison with linseed oil meal as the protein concentrate for dairy cows, no significant differences in the flavor of the milk were found in tests at the Iowa Experiment Station.

* * * *

Oil Seed Products Co., Fresno, Calif., is installing a mill to process the various oilseed crops grown in the vicinity. The firm plans an experimental program to determine the best varieties of soybeans for the region.

* * * *

Fire of undetermined origin gutted the two and one-half story processing plant of Spencer Kellogg & Sons, Inc., at Des Moines, Iowa, May 29. The plant crushed approximately 6,000 bushels of soybeans daily. Four tanks holding 1,200 tons of soybean oil meal just north of the building did not catch fire. J. W. Pooley, plant manager, did not place an immediate estimate on the loss.

* * * *

To provide better facilities for the local purchase of corn, soybeans and other grains for Pillsbury Feed Mills and Pillsbury Soy Mills in Clinton, Iowa, officials of Pillsbury Mills, Inc., have announced the purchase of the Continental Grain Elevator and Warehouse at the foot of 4th Street and the Mississippi River. Built in 1939 and one of the most modern elevators of its kind, it is equipped to unload trucks at a very rapid rate. It is also equipped to handle grain on the railroad and Mississippi River.

* * * *

The western New York section of the American Chemical Society has presented the Jacob F. Schoellkopf memorial medal award of 1945 to Dr. Alexander Schwarcman, Chief Research Chemist of Spencer Kellogg and Sons, Inc., for "contributions to the processing, refining and modification of vegetable oils." The award was made at a dinner given by the Section at the General Brock Hotel, Niagara Falls, Ont., May 24.

* * * *

"I have been too busy the past few years to attend any of the soybean or Chemurgic meetings," writes H. I. Cohn of Valley Farms Co., Carrollton, Ill. "Last year we produced on the big farm here in Green County approximately 60,000 bushels of beans with a 24-bushel average. This year we plan to exceed our 2,500 acres of last year. Our varieties are Chief, Lincoln and Richmond."

* * * *

The Western Grain & Feed association, Des Moines, Iowa, has published its annual Iowa Grain & Feed Dealers directory for 1945 under the direction of Mark K. Thornburg, executive secretary of the association. Copies may be obtained from association headquarters at 827 Grand Avenue, Des Moines.

* * * *

John J. Woods, head of the Jay Bee Sales Co., Kansas City, died unexpectedly about noon May 26 in his office. He was 61 years old and had been in good health. One of the most prominent milling machinery salesmen in the country, Mr. Woods has in the last 23 years confined his efforts to the hammermill line of J. B. Sedberry, Inc., of Franklin, Tenn.

* * * *

The Nickel Plate Road has issued 1944 soybean maps for Illinois, Indiana and Ohio. The maps show total acreage and acres and bushels harvested by county and state. Location is starred of 23 soybean processing plants in Illinois, 10 in Indiana and 13 in Ohio.

SHUMAN HEADS GLIDDEN STAFF

The Glidden Co., through P. E. Sprague, vice president, announces the appointment of C. Kenneth Shuman as chairman of the company's nutritional staff which will be directly responsible for the formulations of all Glidden feeds of the feed mill division at Indianapolis, Ind., and for the direction of research and experimentation in the field of animal and poultry nutrition.

Associated with Shuman will be Dr. P. L. Julian and J. L. Gabby.

Ken Shuman has an excellent background for this position, which corresponds to that of director of nutrition as generally used in the feed industry by those feed manufacturers who maintain a nutritional and educational staff.

Shuman is a graduate of Ohio State University, specializing in agricultural chemistry and a former graduate instructor in agricultural and biological chemistry at the U. S. Regional Soybean Laboratory. He worked in cooperation with the Ohio Agricultural Experiment Station on soybean investigations.

—s b d—

A BIG YIELD WITH LINCOLNS

Lincolns may be adding millions of dollars to the value of our national soybean crop in a year or two, Fred Hawthorn, Castana, Iowa, farmer predicts in an interesting article on Lincolns in the May issue of *Country Gentleman.*

Hawthorn reports a comparison of Lincoln's performance with an adjacent field of Richlands on the same soil type on his farm las year. Though the Richlands averaged 33½ bushels per acre, the Lincolns went nine bushels higher, or 27 percent.

The Richlands are a more upstanding plant but Lincolns showed less harvesting loss. Lincolns averaged two pods per plant left by the combine sickle, Richlands five.

Hawthorn double lists his soys in beds 40 inches apart, and cultivates the first time with a listed corn cultivator. He finds this a good method of weed control.

always something new

New ideas, new materials, new methods. The U. S. A. moves ever forward because American business and American consumers are always on the alert for *"something new."* Whether it's new cars, new homes, new products, or *new bags.*

That's why, during our 60 business years, Percy Kent has made it a basic policy to look ahead in your interest . . . to keep you supplied *"with always something new"* in bags for packaging your flours and feed products.

Among the many Percy Kent innovations resulting from this policy are sales-building bag designs—improved printing methods including perfection wash-out inks—and outstanding new bag materials, such as Ken-Stripes, Ken-Prints, and Tint-Sax.

SPECIALISTS IN COTTON BAGS SINCE 1885

PERCY KENT BAG COMPANY, INC.

KANSAS CITY
BUFFALO
NEW YORK
WICHITA
MINNEAPOLIS
CHICAGO
OKLAHOMA CITY

WASHINGTON Digest

By PORTER M. HEDGE
Washington Correspondent for
The Soybean Digest

Protein Squeeze Walter C. Berger, head of the Agricultural Adjustment Agency's feed management branch, reports that a squeeze is developing in animal proteins because of the drop in total livestock slaughter and the sharp spurt in baby chick production this spring.

The chick production curve for April shot up to the highest level in history for that month, totaling 346,621,000 against the second high peak on record of a little more than 334 million for April, 1943.

The pinch on animal proteins will hit hardest during the next three to four months, and be felt most by hog and poultry feeders. War Food Administration, meantime, is attempting to import some additional supplies of animal proteins from Argentina.

That country, however, is severely hit by drouth, its livestock slaughter also is down, and demand from other countries has worked the market up almost to prohibitive levels.

European demand for protein feeds has skyrocketed, and the Administration has to keep a tight rein on exports. "We are telling these countries," says Berger, "that the best we can do at this time is to give you mixed feeds, and then only providing we make up the formulas and select the purchase areas. In this way we can utilize the ingredients we have the most of."

As to export feeds, Berger points out that the Administration can hardly shoulder two jobs at once: Produce more milk, eggs and meat in this country and at the same time supply European countries with the feed ingredients they would like to have.

The most pressing problem, says Berger, is not so much the supply of feed ingredients as the shortage of labor and transportation difficulties.

Berger has been trying, thus far with little success, to get WPB to put the feed processing industry on the national war urgency "must" list, which would entitle it to government aid in obtaining labor, transportation, etc., comparable to that given designated war industries.

The next 60 days will be a critical labor period for the feed industry, Berger says. His office has advised War Food Administration field officials to give the industry all the help they can to tide over the squeeze period.

The oilseed industry has been working with WFA in moving protein meal supplies to the Pacific coast ahead of normal shipping schedules to build up inventories there before the big westward movement of the Army, likely to hit this summer and be in full swing by fall.

Berger reports that the overall feed concentrate picture is considerably improved over a year ago, despite tight spots here and there. A report of the feed survey committee of the Feed Industry Council indicates a 15 percent deficit of high protein feeds, but this is a 10 percent improvement over last year.

The report shows a 6.5 percent excess of grain and millfeeds for the 1944-'45 year, and a 4.2 percent excess of total concentrates. The same study a year ago showed an 11 percent deficit of grain and millfeeds, and a 12.3 percent deficit of total feed concentrates.

Berger notes that the peak year consumption of high protein feeds per livestock unit was 121 pounds, in 1940-'41. Consumption for the two years, 1942-'44, was 116 pounds per unit. Estimates for the current year indicate around 123 pounds per unit, though Berger points out that in view of the quickened pace of feeding this may drop back close to the 1940-'41 level of 121 pounds.

The New Secretary A tightening up of the distribution machinery for fats and oils, for civilians, the army and industrial users, is indicated as one of the early moves to be expected from the new secretary of agriculture, Representative Clinton P. Anderson.

The current deficit of fats and oils is about as acute, if not more so, than the shortages of meats and sugar which have been getting most of the newspaper headlines.

Rep. Anderson's House food investigating committee has the fats and oils situation high on its list of considerations during the committee's nation-wide food investigation tour this month.

The new Secretary is expected to make major changes in organization of food management when he takes office July 1. Commodity Credit Corporation, which handles price supports affecting soybean growers, probably will be reorganized again.

His ideas on distribution are known to have been influenced by a leaflet which Milo Perkins, originator of the food stamp plan, wrote in 1940, called "The Challenge of Underconsumption."

Basic idea of the leaflet is that for the first time the world is able to produce enough to feed everyone a subsistence diet —if a proper distribution system can be worked out.

Anderson declared in a recent interview: "Instead of wartime shortages we could have abundance to share with other nations.

CLASS 21800

TABLE TYPE MACHINE

for closing bags with class 14500 sewing head

The ideal all-around bag closing equipment for regular plant production is Union Special Class 21800 table type machine equipped with either a Class 14500 or Class 80600 fully enclosed sewing head.

Class 21800 machines can be equipped with vertically adjustable or fixed heads; the conveyors on all machines in this group are vertically adjustable to varying heights of bags sewed. They have a double clutch mechanism for independent or synchronized conveyor belt travel. A conveniently located single foot pedal controls both sewing head and conveyor.

Write for NEW BULLETIN NO. 200.
UNION SPECIAL MACHINE COMPANY,
476 N. Franklin Street, Chicago 10, Ill.

Union Special
Bag Closing Machines

But to do that we would have to produce food as we did planes — with the same disregard of possible surplus and waste that is represented by the closing of the Willow Run (bomber) plant."

To soybean growers, this general philosophy of high production and wide distribution indicates greater emphasis on price supports in obtaining needed production of short crops.

Specifically, it indicates that production officials, whose recommendations on price supports usually have run to the higher side, may be given a stronger voice in price support programs.

Oil Imports Won't Help Department of Agriculture fats and oils economists see little prospect of foreign imports bringing any appreciable relief this year to ease the shortage of fats and oils.

Before the war the Far East supplied the world about 3⅛ billion pounds of fats and oils, amounting to approximately a third of normal world trade.

Except for the Philippines, Asiatic supplies are still cut off by the Japs, and officials here think it will take many months to get Philippine production back on the market.

Rebuilding of bridges, restoration of inter-island shipping, shipment of goods into the islands to exchange for oil products (the Philippines need goods more than they do money), and arrangements for shipping to haul copra back to the United States, all are involved in the Philippine import picture.

It's the understanding of officials here that none of these arrangements have been completed thus far, indicating a long period before the U. S. will be able to cash in on Philippine supplies.

Even when Far Eastern supplies begin to come back into world trade, these officials say, other United Nations which have been on a much leaner fats and oils diet during the war will come in for their share of Asiatic supplies. Continental Europe, for instance, imported about 4½ billion pounds of fats and oils before the war.

A trickle of soybeans has been leaving this country for Europe in recent months, and more will be shipped later. Total European shipments for this year are roughly estimated at around 10 million bushels, though official allocations aren't available.

Deal with Argentina The United States government has closed a deal with Argentina for purchase by the U. S. Commercial Company of Argentina's exportable surplus vegetable oil seeds and their products for delivery in 1945 and 1946.

The purchase will amount to all of Argentina's 1945-'46 exportable surplus of edible oils and peanuts, less the normal amounts bought by other Latin American republics. A large part of these commodities will be bought for shipment to Europe.

Under the recent agreement, the U. S. Commercial Co. also will buy Argentina's exportable surplus of flaxseed, linseed oil and meal. In return, the U. S. will export additional supplies of fuel oil to Argentina, which has been using flax for fuel.

The U.S.C.C. is a purchasing agent for the United Nations and neutral countries. Distribution of the products will be handled through the Combined Food Board, set up in Washington.

* * *

OPA has increased processors' base prices on sized soybean cakes and pellets from $46.50 to $47.25 a ton to speed up production for range feeding. The old basic price, OPA says, made it unprofitable to manufacture pellets.

JAY BEE

Grinders

Jay Bee Model W
Direct Connected
60 to 200 H.P.

Give You

BIG CAPACITY

with

ECONOMY

of Time, Work, Expense

and

Amazing
ENDURANCE

FOR hammermill grinding, JAY BEE leads! It's the choice of mill operators who must meet heavy schedules. More JAY BEE's are in feed plants than any other type of mill.

JAY BEE **stays on the job,** day and night if necessary, with little or no stops for repairs. Tough as an Army tank! "It's unbreakable!" says an operator.

Emergency conditions prove the sturdy performance of the JAY BEE. Over a quarter of a century mill making experience, that produces the JAY BEE, now pays big dividends to mill operators.

Whatever your grinding needs, write one of the addresses below for details of JAY BEE Grinding Equipment.

JAY BEE Grinders are furnished with belt, V-belt and direct connected drive in from 12 to 200 H.P. for every grinding and pulverizing purpose.

JAY BEE's are manufactured by The Bossert Co., Inc., Utica, N. Y., holders of the Army-Navy "E" award with three stars for production efficiency.

UTICA, NEW YORK **J. B. SEDBERRY, INC.** FRANKLIN TENNESSEE

JOHN J. WOODS & SONS, JAY BEE SALES CO., KANSAS CITY, MO.

W. Harold Grubbs, Box 2469, Winston-Salem, N. C.
E. B. Harrison, Whigham, Ga.
T. G. Holland Mach. Co., 474 Fairfax Rd., Drexel Hill, Pa.
W. H. Hust, Jay Bee Co., 1031 N. Humphrey Ave., Oak Park, Ill.
The Lamiell Company, Greenwich, Ohio
Bryant C. Long, 1601 Choctaw Street, Baton Rouge, La.
O. D. Padgett, Sandersville, Ga.
A. E. Thompson Co., 718 Washington Ave. N., Minneapolis, Minn.
C. Y. Wier, Sr., Yates Hotel, Utica, N. Y.
Douglas W. Palmer, 3808 44th Ave. S. W., Seattle, Wash.
M. E. Padgett, Bennettsville, S. C.
L. C. Dibert Company, 787-793 Brannan Street, San Francisco, Calif.
Western Belting & Equipment Co., 2600 Santa Fe Ave., Los Angeles, Calif.
H. A. McLeod, Hotel Pinehurst, Laurel, Miss.
Frank S. Sanders, Franklin, Tenn.
A. F. Shirk, Box 523, Canton, Ohio
Snyder Machine Shop, 3rd & Emery St., Longmont, Colo.
J. E. Sorrells, Slocomb, Ala.
Jay Bee Sales Co., 220 Broadway, New York 7, N. Y.
Jay Bee Sales Co., Jackson, Tenn.
Jay Bee Sales Co., 4619 So. 7th Ave., Louisville Ky.
Jay Bee of Texas, Dallas, Texas
Fred Siegrist, Sr., Jay Bee Sales Co., 476 S. Meridian St., Indianapolis, Ind.

OWENSBORO GRAIN CO.

Owensboro, Ky.

Processors of Soybeans

★ ★ ★

Greendale Soybean Meal

MARIANNA SALES COMPANY

MEMPHIS 1, TENN.

Dealers in

Soybean and Cottonseed Products

Brokers in

Soybean and Cottonseed Meal Futures

Members

Memphis Merchants Exchange
American Feed Manufacturers Association

Tel. 55707 **L. D. 364**

Quality — Appearance — Strength — these factors are all "in the bag" when you use FULTON BAGS for your meal, pellets and feeds. FULTON artcraft printing of your brand is a valuable sales aid. Remember, too, that your soybean meal will not heat when stored in cotton bags. For the best in cotton bags, always specify FULTON.

FULTON BAG & COTTON MILLS

Manufacturers Since 1870

Atlanta St. Louis Dallas Minneapolis Denver
New Orleans Kansas City, Kan. New York

from RAW COTTON to FINISHED BAGS..

FULTON BAGS made in our plants from the raw cotton to the finished bag assures you a safe and economical container for shipping soybean meal.

I Consider

SEEDBURO

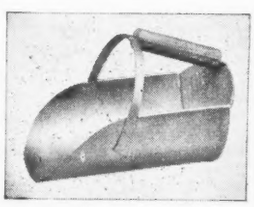
"HEADQUARTERS" for Grain and Seed Equipment

That's what grain, seed and feed men have been saying since 1912. Here, "under one roof," will be found a complete stock of grain, seed and feed testing equipment and supplies. Every item made according to Government standards wherever specifications have been established . . . every product precision built . . . rigidly inspected during manufacture and before shipment. Write for free circulars on items which interest you.

The *Steinlite* Electronic Moisture Tester

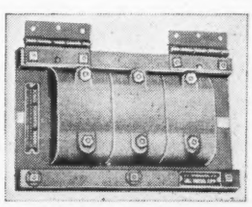
- Results in one minute
- Tests many products
- Saves you money
- Makes you bigger profits
- Easy to operate
- Accurate and Dependable

The Steinlite is the most popular rapid tester on the market for determining the moisture content of grains and related products. It is EASY TO USE. . . . like tuning a radio. The Steinlite operates on the radio frequency impedance principle, and is checked against official oven methods. No technical knowledge is necessary. With practice you can make a test in one minute. Sold on 10-day free trial basis. No money down. Available for immediate shipment. Price $275, F.O.B. Atchison, Kansas.



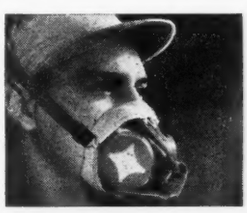
HANDY SCOOP

This handy scoop is made of blue planished steel. The handle, centered instead of at the end, distributes the weight evenly and makes the handling of materials easier and handier. It is available in four different sizes, 8 inch length $1.35, 10 inch length $1.50, 12 inch length $1.75, 14 inch length $2.25. This scoop is in great demand in the grain, seed and feed trades.



ERIEZ MAGNETIC SEPARATOR

Removes tramp iron and steel from grain . . . prevents damage to machinery. Avoids possible death of poultry and livestock. Prevents fire from sparks or hot iron in feed. Unit is permanently magnetized. Requires no wiring to power lines or generator. Requires no attention except occasionally to remove accumulated iron. Approved by Mill Mutuals. Guaranteed satisfactory. For 4" spout, $35. For 8" spout, $60. F.O.B. shipping point. Other sizes available.



DUPOR RESPIRATOR

The No. 66 Dupor Respirator provides economical low cost protection where dust hazards prevail. Has two large felt filter pads 5/16 inch thick, securing double capacity and a clear entrance aperture of 7½ square inches. Made of soft, high grade rubber and weighs only 4 oz. Price, each $1.65. Does not "stick out" and obscure vision and is foldable, reversible, lightweight and comfortable.

RANDOLPH "4" FIRE EXTINGUISHER

This Carbon Dioxide (CO_2) Fire Extinguisher is scientifically designed for complete safety. The cylinder has a capacity of 4 lbs. CO_2. Special formula shatterproof and pressure-proof steel. Effective against oil, grease, paint, gasoline and electrical fires. Exclusive one hand, thumb trigger operation. Cannot damage or stain food, clothing, woodwork or machinery. Complete with wall bracket, $20.25.

SEEDBURO EQUIPMENT COMPANY

629 BROOKS BUILDING CHICAGO 6, ILLINOIS

REPAIR BAGS *Quickly, Easily*
With
TEHR-GREEZE
FABRIC CEMENT

It really sticks Ideally suited for patching, mending or repairing clothing, tents, awnings, grain bags, sacks, burlap bags, flour mill silks, canvas, leather goods and many other materials. A thousand uses in home, farm and shop.

EASY TO USE — Just spread a thin coating with a paddle or knife, press pieces firmly together and allow to dry. Will not peel or tear off.

WATERPROOF — Can be washed without loosening the patches. Available in conveniently sized containers. Write for trade prices.

VAL-A COMPANY 700 W. ROOT STREET CHICAGO 9, ILLINOIS

GUILLORY SALES CO.
BROKERS

OIL and MEAL
SOYBEAN and COTTONSEED

Cotton Exchange Bldg. **Memphis 3, Tenn.**
Phones L. D. 451 - 452

BLANTON MILL
— Incorporated —
OPERATED BY
The Blanton Company
Refiners of Vegetable Oil

MANUFACTURERS OF VEGETABLE OIL FOOD PRODUCTS

Creamo Margarine **Shortening**
Salad Dressings **Salad Oils**

Blanco
REG. U.S. PAT. OFF.
SOYA BEAN OIL MEAL

WE SOLICIT OFFERINGS OF SOYA BEANS

THE BLANTON COMPANY
3328 North Wharf **ST. LOUIS 7, MO.**

In The MARKETS

SOYBEAN CRUSHING UP 121 PERCENT 1941-1944

Reflecting heavy wartime demand for soybean oil to manufacture shortening and oleomargarine, crushings of soybeans in the United States rose approximately 121 percent in the 1941-44 period, the Bureau of the Census, Department of Commerce, reports.

The proportion of the total consumption of soybean oil used in the manufacture of shortening and oleomargarine in 1944 was greater than in 1941, while the proportion used in paints, varnish, and soap in 1944 was less than in 1941, according to the Census Bureau.

In the first state-by-state report on soybean crushings ever to be released by the Census Bureau, crushings in 1944 are reported at 4,347,775 tons, compared with 4,161,458 tons in 1943, and only 1,970,811 tons in 1941.

In the 1941-44 period, Illinois led all other states in soybean crushings. In 1944, crushings in that state totaled 1,492,224 tons, or approximately one-third of the total crushings in the United States. Ever since 1941, Illinois has been the only state in which annual crushings exceeded 1,000,000 tons.

The states in which crushings of soybeans are carried on are chiefly the cornbelt and cottonbelt states, where soybeans are grown as part of a crop-rotating program.

In 1944, the 4,347,775 tons of soybeans crushed produced 1,245,873,000 pounds of crude soybean oil. Of the total consumption of soybean oil in 1944, approximately 56 percent was used in the production of shortening, 19 percent in oleomargarine, 2 percent in paint and varnish, and about 23 percent in various other commodities. In 1941, the 1,970,811 tons of soybeans crushed produced 585,629,000 pounds of crude soybean oil. Of the consumption of soybean oil that year, 47 percent was used in the production of shortening, 16 percent in oleomargarine, 9 percent in paint and varnish, and 28 percent in various other products.

The accompanying tables show, for the 1941-44 period, soybean crushings, by states; crude oil production and consumption; and factory and plant warehouse stocks at the end of each year.

SOYBEAN CRUDE OIL PRODUCTION, CONSUMPTION, AND FACTORY AND PLANT WAREHOUSE STOCKS, CALENDAR YEARS 1941-44

Year	Production Pounds	Consumption Pounds	Factory & plant warehouse stocks, Dec. 31 Pounds
1944	1,245,873,000	1,219,219,000	72,693,000
1943	1,233,751,000	1,139,469,000	97,075,000
1942	761,582,000	721,539,000	83,416,000
1941	585,629,000	507,284,000	68,451,000

CRUSHINGS OF SOYBEANS IN THE UNITED STATES, BY STATES, CALENDAR YEARS 1941-44

State	1944 1/ Tons	1943 Tons	1942 Tons	1941 Tons
TOTAL	4,347,775	4,161,458	2,489,662	1,970,811
Alabama	37,344	69,006	1,383	
Arkansas	92,603	62,300	5,356	
California	50,073	93,378	13,283	
Georgia	49,953	98,294	3,095	
Illinois	1,492,224	1,532,375	1,257,308	977,310
Indiana	364,001	385,906	303,872	208,994
Iowa	533,272	350,069	236,328	213,695
Kansas	28,323			
Kentucky	127,354	115,363	81,101	50,781
Louisiana	7,593	42,196		
Mississippi	14,866			
Missouri	109,159			
Nebraska	54,229			
North Carolina	46,817	51,223	16,877	25,468
Ohio	540,741	436,621	301,235	258,895
Oklahoma	101,873	62,317		
South Carolina	29,412	30,465		
Tennessee	62,907	56,796		
Texas	256,872	220,910	4,399	
Virginia		17,947		
All other	348,159	536,292	265,425	235,668

1/Preliminary

● STANDARD SHORTENING SHIPMENTS. By members of Institute of Shortening Mfgrs., Inc.

May 5, lbs.	7,923,436
May 12	8,221,178
May 19	9,261,015
May 26	7,220,344
June 2	7,116,676

• SUPPLIES. Soybean supplies April 1 were 2½ percent larger than a year ago reflecting the slightly larger stocks at the beginning of the season and smaller disappearance since, the War Food Administration reports. Growers planting intentions indicated a 1945 soybean acreage slightly smaller than last year. April farm prices were the highest since 1929.

Soybean stocks on April 1 amounted to 112,058,000 bushels compared with 109,360,000 a year ago and 116,306,000 bushels two years ago. Larger supplies in country and terminal elevators more than offset the smaller stocks on farms and in crushing plants. Stocks at country and terminal elevators were nearly 19 million bushels more than a year ago while stocks at crushing plants were nearly 3 million bushels less. Farm stocks amounting to 27,852,000 bushels were 12 million bushels less than last year and only about half the large 1943 supply on farms.

Disappearance of soybeans October through March was slightly over 1 percent less than in the same months last season and totaled 95,137,000 bushels. Disappearance increased seasonally during the January-March quarter and amounted to 48,870,000 bushels compared with 46,267,000 in the October-December quarter. Last season disappearance during the second quarter was 57,569,000 bushels and in the first quarter only 38,739,000 bushels.

Crushings of soybeans for oil, as reported by the Bureau of the Census, totaled 40,294,000 bushels January through March this season. These compare with 43,274,000 bushels crushed in the comparable months last season and 38,455,000 bushels during the same months of 1942-43. The quantity milled for food was about the same during the second quarter as the first and amounted to 547,000 bushels. However, this was less than a fourth of the record amount of 2,424,000 bushels consumed in the second quarter last season.

The quality of the 1944 crop is about as good as the excellent 1943 Harvest according to inspectors' reports.

Stocks of Soybeans in Mills, Elevators, and Warehouses and Other Establishments 1/ April 1, With Comparisons

State	April 1, 1944	Jan. 1, 1945	Apr. 1, 1945
	Thousand Bushels		
Ohio	2,035	3,644	2,324
Indiana	3,018	4,559	2,840
Illinois	6,230	21,022	16,900
Michigan	95	112	85
Minnesota	120	334	198
Iowa	4,336	11,833	9,229
Missouri	652	601	141
Nebraska	2	68	52
Kansas	131	149	168
Virginia	37	13	10
North Carolina	130	128	100
Mississippi	125	40	26
Arkansas	53	41	14
Other States	353	393	209
United States	17,317	42,937	32,296

1/ Excludes stocks in processing plants enumerated by the Bureau of the Census and stocks at 46 terminal markets reported by War Food Administration.

Stocks of Soybeans, April 1, With Comparisons

Position	Apr. 1, 1944	Jan. 1, 1945	Apr. 1, 1945
	Thousand Bushels		
On Farms	39,876	42,593	27,852
Int. M. E. & Whses.	17,317	42,937	32,296
Processing Plants	35,203	47,429	32,640
Terminal Markets	12,790	24,446	16,508
Steel & Wooden Bins	4,174	3,523	2,762
Total All Positions	109,360	160,928	112,058

Commodity Products Company

-- Jobbers --

Specializing in the Distribution of Proteins—

• Soybean

• Cottonseed

• Peanut

Ft. Worth Club Bldg. Ft. Worth, Texas

Phones: 2-6353, 2-6354 Western Union

How to Use Spergon with Legume Inoculants On Soy Bean Seed

Repeated tests have indicated the high value of Spergon in preventing seed decay and increasing emergence, especially in a cold wet planting season.

Tests also show that Spergon is compatible with legume inoculants and that you may obtain double benefits by treating seed with Spergon and with bacterial cultures. Here's how it's done:

1. **First treat seed with Spergon. The recommended rate is two ounces per bushel. Your state experiment station will advise dosages to meet special local conditions.**
2. **Inoculate only with strong cultures containing viable bacteria and apply excess amounts over that recommended for untreated seed.**
3. **Use just enough water to make culture cling to seed.**
4. **Plant within two hours after inoculating.**

Write us for further information about the use of Spergon to increase soy bean stands and yield, and for copy of Soybean bulletin.

Advantages of Spergon

- **Protects seed against decay caused by soil-borne and seed-surface fungi.**
- **Safe to use. Non-irritating and non-injurious to the operator when applying it to seed.**
- **Long lasting. Spergon does not deteriorate with age. May be applied months in advance of planting.**
- **Self-lubricating. No graphite needed in planter.**

Spergon

Reg. U. S. Pat. Off.

SEED PROTECTANT

UNITED STATES RUBBER COMPANY

NAUGATUCK CHEMICAL DIVISION

Serving Through Science

1230 Sixth Avenue • Rockefeller Center • New York 20, N. Y.

Listen to "Science Looks Forward"— new series of talks by the great scientists of America — on the Philharmonic-Symphony Program. CBS network, Sunday afternoon, 3:00 to 4:30 E. W. T.

ZIMMERMAN ALDERSON CARR COMPANY

BROKERS IN VEGETABLE OILS

Intelligent and Honest Brokerage Service Since 1908

W. B. Burr **105 W. Adams St., Chicago 3, Ill.** **O. B. Huffaker**
L. D. 29 **Randolph 2037** **L. D. 30**

NEW YORK **MEMPHIS** **DALLAS**

WOODSON-TENENT LABORATORIES

MEMPHIS, TENNESSEE and CAIRO, ILLINOIS

Analysis of Soybeans and Products

Official Chemists for National Soybean Processors Association

"ILLINI"
BRAND

EXPELLER SOYBEAN OIL MEAL

41% Protein
4.5% Fat

either Sacked or Bulk

A Quality Product backed up by courteous service and fair dealing.

WE BUY SOYBEANS
in Car Lots or Truck Lots

DECATUR SOY PRODUCTS CO.

DECATUR ILLINOIS

• SOYBEAN INSPECTIONS. Inspected receipts of soybeans in April increased sharply to a total of 6,588 cars, compared with 3,848 cars in March and 2,367 cars in February, according to inspectors' reports to the Grain Products Branch of the War Food Administration. Inspected receipts October through April this season were 68,588 cars compared with 73,805 cars for the same period the preceding year.

The quality of the soybeans inspected in April showed continued improvement, 91 percent grading No. 2 or better compared with 88 percent in March and 83 percent in February.

Inspections of soybeans in April included the equivalent of 313 cars inspected as cargo lots, and truck receipts equivalent to about 17 cars.

• SOYBEAN STOCKS. War Food Administration commercial grain stock report.

UNITED STATES SOYBEANS IN STORE AND AFLOAT AT DOMESTIC MARKETS (1,000 Bu.)

	May 9	May 15	May 22	May 29	June 5
Atlantic Coast	514	334	266	262	256
Gulf Coast	711	727	757	917	588
Northwestern and Upper Lake	465	443	401	401	401
Lower Lake	2,936	2,462	2,255	2,042	1,733
East Central	4,133	3,873	3,706	3,665	3,601
West Central, Southwestern & Western	3,237	2,885	2,637	2,372	2,197
Pacific Coast					
Total current week	11,996	10,724	10,022	9,659	8,776
Total year ago	10,302	9,807	8,888	8,134	7,475

TOTAL NORTH AMERICAN COMMERCIAL GRAIN STOCKS

Current week	11,996		10,022	9,659	8,776
Year ago	10,315	9,843	8,931	8,171	7,503

Government Orders

• PROCESSOR BASE. Processors' base prices have now been increased to $47.25 from $46.50 per ton on sized cakes and pellets produced from soybeans, the Office of Price Administration announces.

Soybean sized cakes and pellets are used chiefly to feed range animals, OPA said.

This action, effective May 16, 1945, was taken by OPA to remove impediments to the production of these products, which are needed for range feeding.

The present price differential between oil meal and sized cakes and pellets makes the manufacture of the latter unprofitable, OPA explained. The regulation provides a base price of $45.00 per ton for oil meal and oil meal cakes.

• SUSPENSION CONTINUED. The War Food Administration, under War Food Order No. 29, is continuing through September 30, 1945, the suspension of restrictions on delivery of crude cottonseed, peanut, soybean and corn oils to refiners for refining purposes. Authorizations for delivery of the four crude oils to all other users, however, will continue to be obtained from WFA.